December

BROADCAST WRNY STATION

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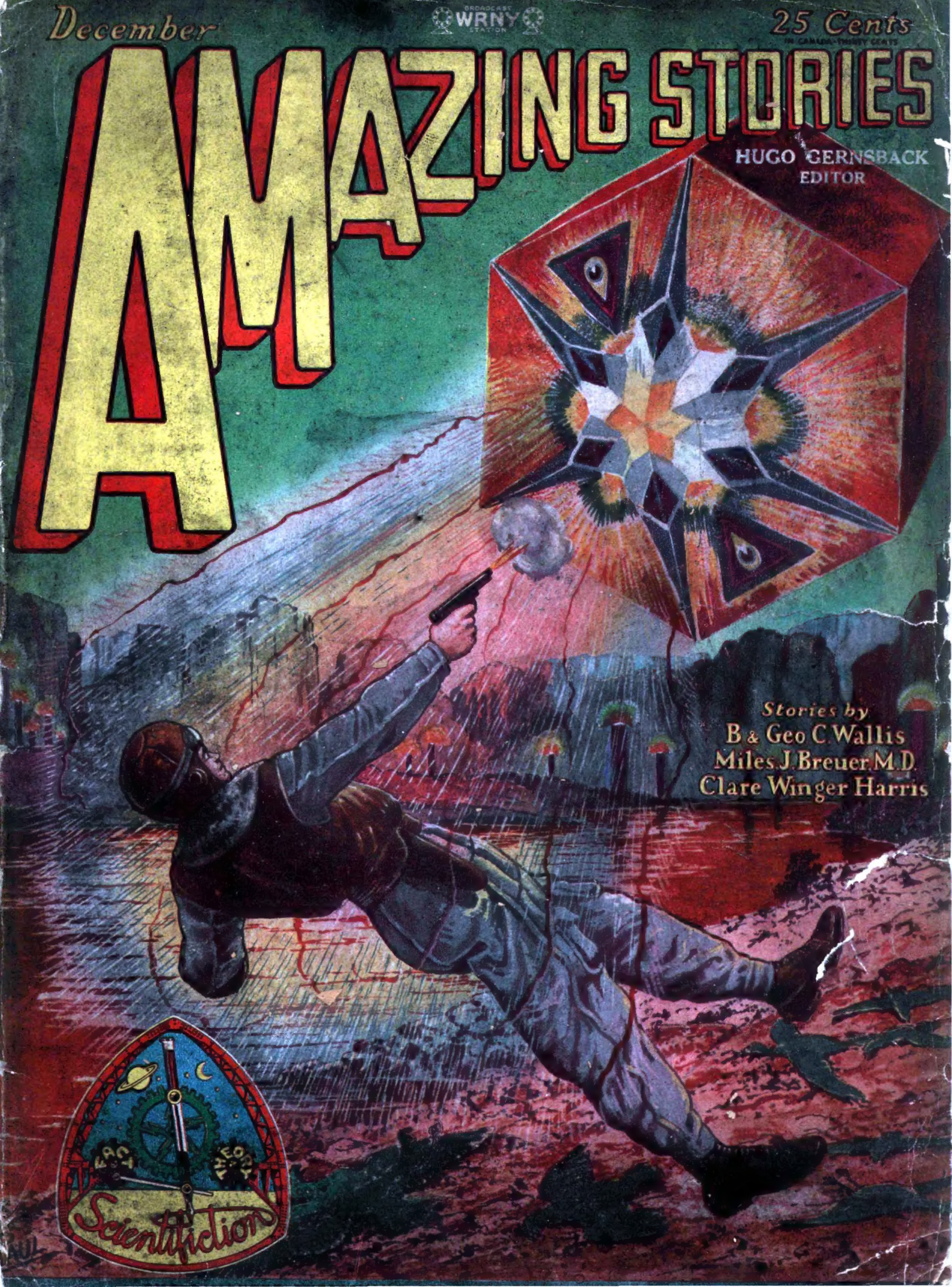
AMAZING STORIES

HUGO GERNSBACK
EDITOR

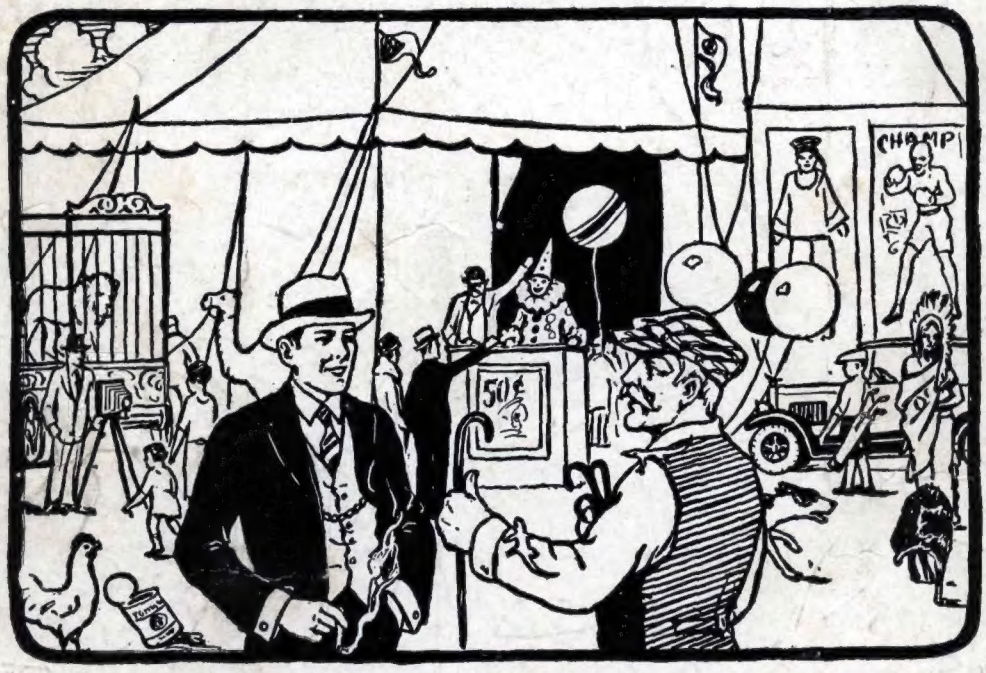


Stories by
B & Geo C Wallis
Miles J Breuer M.D.
Clare Winger Harris

Scientifiction

$5,000.00 Worth of Prizes

I AM going to give away ABSOLUTELY FREE, more than $5,000.00 worth of wonderful prizes, consisting of two Automobiles, two Phonographs, a Shetland Pony, a Radio, a Bicycle, Silverware and many other high grade articles of merchandise—besides Hundreds of Dollars in Cash. Already we have given away Thousands of Dollars in Cash and Valuable Prizes to advertise our business, but this is the most liberal offer we have ever made. **First Prize winner** will receive an 8 Cyl., 100 Horsepower, Custom Built Studebaker Sedan or $2,250.00 in cash; Second Prize Winner will receive a Four-door Chevrolet Sedan or $675.00 in cash; Third Prize Winner will receive a Victor Orthophonic Victrola, Model 84, or $235.00 in cash, etc. Each Prize will be shipped and delivered right to the winner's door, all charges paid. This offer is open to anyone living in the United States, outside of Chicago, and is backed by a Big Reliable Company of many years' standing.



Find 5 Objects
Starting with the Letter "C"

There are many objects in the picture of the circus above, such as lion, balloon, Indian, automobile, rooster, boy, tent, etc. If you can find 5 that start with the letter "C," you may win a Big Prize. Just think of winning a wonderful new 8-cylinder Studebaker Sedan or $2,250.00 in cash, absolutely free. Somebody is bound to win. Why not you? Get busy right away. Find five objects starting with the letter "C," fill in the coupon below and send it to me at once.

List of Prizes

1. 8 Cylinder Studebaker Sedan.
2. Four-door Chevrolet Sedan.
3. Victor Orthophonic Victrola.
4. Shetland Pony, Saddle and Bridle.
5. Seven Tube Console Radio.
6. Fibre Living Room Set.
7. Electric Vacuum Cleaner.
8. Apollo Motorbike Bicycle.
9. 100-Piece Dinner Set.
10. Ladies' or Men's Elgin Watch.
11. 29-Piece Silverware Set.
12. Swanson King Portable Phonograph.
13. New Haven Banjo Clock.
14. Wrought Iron Bridge Lamp.
15. Ladies' Overnight Bag.

$550.00 Given for Promptness

In addition to the Studebaker Sedan, the Chevrolet Sedan, the Victor Orthophonic Victrola, the Shetland Pony and the many other valuable prizes—besides Hundreds of Dollars in Cash—I am also going to give $550.00 in Cash for Promptness. It will pay you to act at once. Any winner may have cash instead of the prize won and in case of ties, duplicate prizes will be awarded. There are no tricks or illusions of any kind and neatness or handwriting do not count. You will not be asked to write in any squares, add up any figures, build words, or solve any additional puzzles of any kind. Get busy right away. Find 5 objects starting with the letter "C," fill in the coupon below and send it to me just as soon as possible. EVERYBODY REWARDED. Address

L. E. Wilferd, Mgr., Dept. 1069 315 So. Peoria St., Chicago, Ill.

L. E. Wilferd, Mgr., Dept. 1069,
315 So. Peoria St., Chicago, Ill.

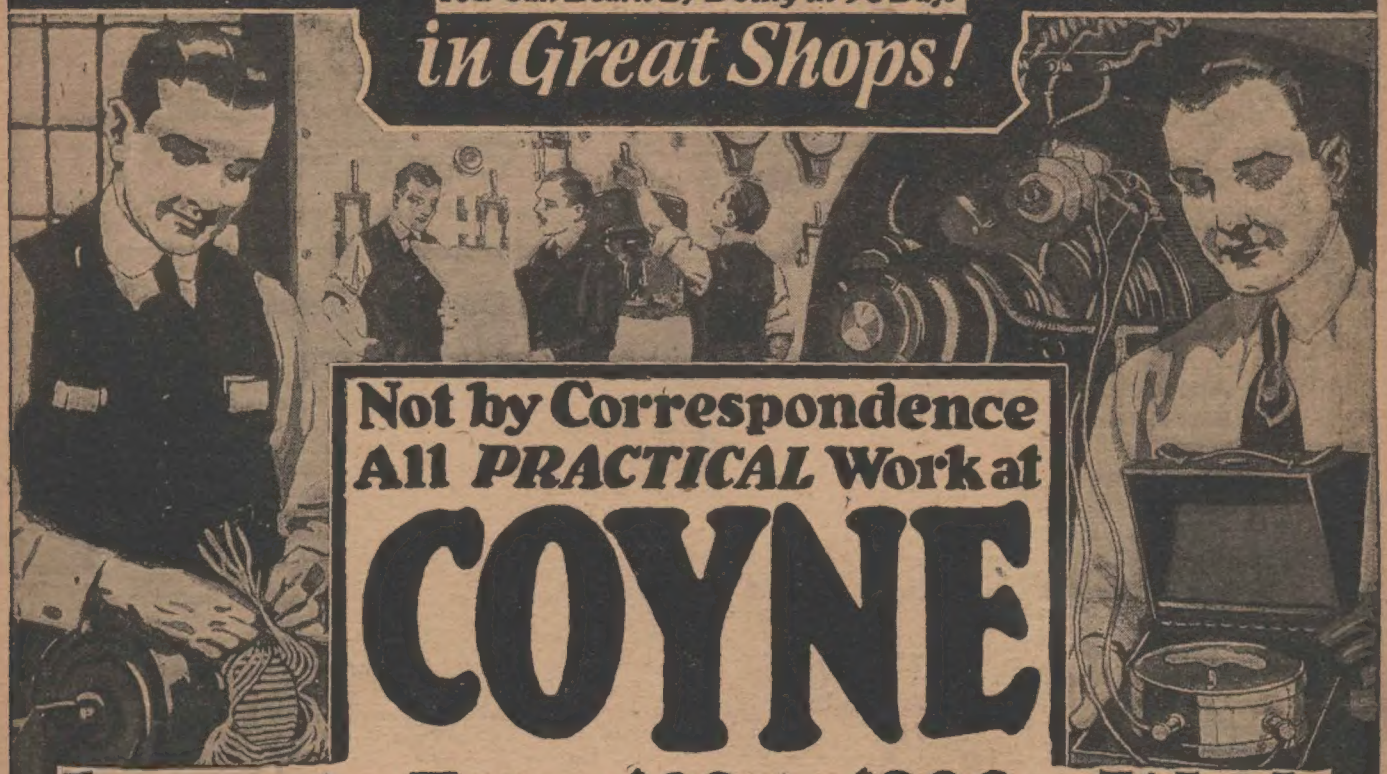
The objects starting with the letter "C" are:

My Name_____

My Address_____

NOW ELECTRICITY Becomes Amazingly Easy At Last

You Can Learn By Doing in 90 Days in Great Shops!



Not by Correspondence All *PRACTICAL* Work at COYNE

Learn to Earn $60 to $200 a Week

You, Too, Can Quickly Become a COYNE Trained Expert

It is hard for me to understand some small-pay-job holders. They spend their most useful years hopelessly expecting $5 raises. Dull occupations—without a chance for praise or reward—no heart in their work—little in life to look forward to. The first step up from that rut is so easy that every ambitious fellow grabs it quick. Any man from 16 to 60 years old can quickly find a splendid place for himself—with absolutely no limit to his prospects—in ELECTRICITY. COYNE has trained thousands of them for Big-Pay-Jobs and every day the demand for new fellows grows heavier in this Giant Industry.

No Experience or Advanced Education Needed!

I take every new Coyne student just as he comes to me. Many thought they were handicapped by lack of experience—age or advanced education. I convinced them these things made no difference. Don't let anything stop you—not even lack of money. Most Coyne graduates had no more—probably less than you have.

Fascinating Work—Real Pay

There can be no doubt about the wonderful big-pay success of Coyne men after graduation. For instance let's take a few at random:—There's Dunn of Texas—started at a salary twice as great as any he had ever before received; Ward of Colorado says "Coyne training was the best investment I ever made. Money couldn't buy it from me now!" Tushka of Wisconsin struck out for himself at once. Makes as high as $80 a day in his own Electrical business; Shaw came to Coyne direct from a farm in Canada—went back to his native country and has averaged between $100 and $185 a week ever since. These are not unusual cases—I can point out hundreds of bigger Coyne graduate successes.

Big Pay Jobs Hunt COYNE Men

The opportunities in Electricity for Coyne trained fellows have always been easily located, but the chances for distinction and worth while success were never so good as they are today. This Giant Industry can only grow as fast as new electrical experts are trained and appointed to service. I estimate that 60,000 new fellows could be put to work at splendid salaries during the next 12 months—if they could be found. But how can I hope to meet even a small part of that demand for trained electrical experts unless you, and many other ambitious fellows like you take advantage of this situation and let me train you quick. I am surely trying to do my part—and I would like to help you, too.

Earn While You Learn

If you need part time work while at COYNE to help pay your living expenses I'll assist you in getting it. Then in 12 HAPPY WEEKS in the great roaring shops of COYNE I'll train you as you never dreamed you could be trained. Don't worry about a job!

I Prepare You for Jobs Like These

Our free employment bureau puts you in touch with openings to choose from. The following are only a few of the kind of positions you fit yourself for in the Great Shops of Coyne:

Farm Lighting Experts $60 to $100 a week
Power House Operator $50 to $75 a week
Auto Electrician $60 to $100 a week
Service Station Owner $200 a week
Radio Expert $75 to $150 a week

COYNE Trains You On Actual Work—Not Books

My course is a practical LEARN-BY-DOING course. Every student receives individual and personal instruction in the great COYNE shops, on thousands of dollars worth of electrical apparatus. You visit the great industrial organizations and power plants in this electrical center. You learn everything about Electricity by taking my course at COYNE. That's the only way to be an Electrical Expert. And you can learn in twelve interesting weeks at COYNE regardless of advanced education, knowledge of mathematics, or previous experience.

Here Are the Facts

We teach you by practice on actual machinery—you learn housewiring by really doing it exactly as it is done outside in a business-like way—not just by reading about it. In the same way we train you in armature winding, power plant operating, motor installations, automotive work and hundreds of other daily electrical jobs. In other words, we train you to earn Big-Pay by working with your head as well as your hands on the same kind of electrical apparatus as you will find after graduation out in the field.

COYNE Trains You for Life

Coyne gives you Free a Life Scholarship which enables you to stay as long as you want without extra charge or return later for more training, and assists you to a position after graduation. We also include Free a course in radio and auto electricity.

FREE If You Act NOW!

Send for my new Big Book on "Big-Pay Facts." It costs me $1.00 to send it to you—it costs you nothing. I am glad to make you a present of it. This Big Book is 12 x 15 inches in dimensions. It contains over 150 photographs that will be of the greatest interest to you. Also it will open your eyes to new opportunities in the gigantic electrical field that is constantly showing Coyne graduates unlimited possibilities for their services at Big-Pay.

GET MY BIG FREE BOOK NOW!

H. C. LEWIS
President
COYNE
Electrical School
Dept. 98-02
500 S. Paulina St.
Chicago, Ill.

Please send me absolutely FREE, and without any obligation on my part, your big new book on "Big-Pay Facts." Also full particulars showing how I can take quick advantage of two courses FREE.

Name _____

Address _____

Town _____

State _____

COYNE ELECTRICAL SCHOOL

H. C. LEWIS, Pres., Dept. 98-02 500 S. Paulina St., Chicago, Ill.

MAIL THIS COUPON NOW!

JULES VERNE'S TOMBSTONE AT AMIENS PORTRAYING HIS IMMORTALITY

AMAZING STORIES

December, 1928
Vol. 3, No. 9

EDITORIAL & GENERAL OFFICES: 230 Fifth Ave., New York City
Published by Experimenter Publishing Company, Inc.

H. GERNSBACK, Pres.; S. GERNSBACK, Vice-Pres. and Treas.

Publishers of SCIENCE & INVENTION, RADIO NEWS, RADIO LISTENERS' GUIDE, AMAZING STORIES QUARTERLY, YOUR BODY

Owners of Broadcast Station WRNY

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Our Cover

this month illustrates a scene from "The Metal Man," by Jack Williamson, in which the scientist, in the land of metal and floating lights, is being held against the point of the thing of glittering, blazing crystal—a great, six-sided upright prism of red—the scarlet fire reaching out caressingly over his body and lifting him slowly up with it.

In Our Next Issue:

THE WAR OF THE PLANETS, by Harl Vincent. In this sequel to "The Golden Girl of Munan," which appeared in the June 1928 issue of Amazing Stories, the author outdoes himself in the superb manner in which he keeps this story going. It is full of action, excitement, adventure and hero worship. But never does the author forget the importance of science in his tale. There is hardly any limit which scientists, bent on revenge, might not reach. And those few Munanese who returned from a trip, to find Munan completely blown up, might almost be excused for seeking to wreak vengeance.

THE ROGER BACON FORMULA, by Irvin Lester and Fletcher Pratt. Roger Bacon, an eminent scientist of the 13th Century, expounded theories so far in advance of his time, that he was accused of working with black magic and was therefore persecuted to a great extent. He is said to have put down many of his scientific ideas in a sort of cipher. This story, which is based on a supposed cipher formula, makes an unusual interplanetarian story that will be enjoyed even by those who are not "interplanetary story fans."

THE PURPLE DEATH, by Jack Barnette. Quite recently, Dr. Coolidge of the General Electric Company, experimented with a new ray by means of which startling experiments were made. Among other things, these rays changed the color of a rabbit's hair. We know so little about our unknown rays, that almost anything might be possible. And it is excellently written.

CAUPHUL, THE CITY UNDER THE SEA, by George Cookman Watson. This story is written by a newspaper man, who regards facts—if interesting—an important part of any tale and has taken the trouble—and he assures us, pleasure—to get his information from authentic sources, and he gives us here a fascinating tale. That he also draws on his imagination, only enhances the interest. We know you will call for a sequel to this story.

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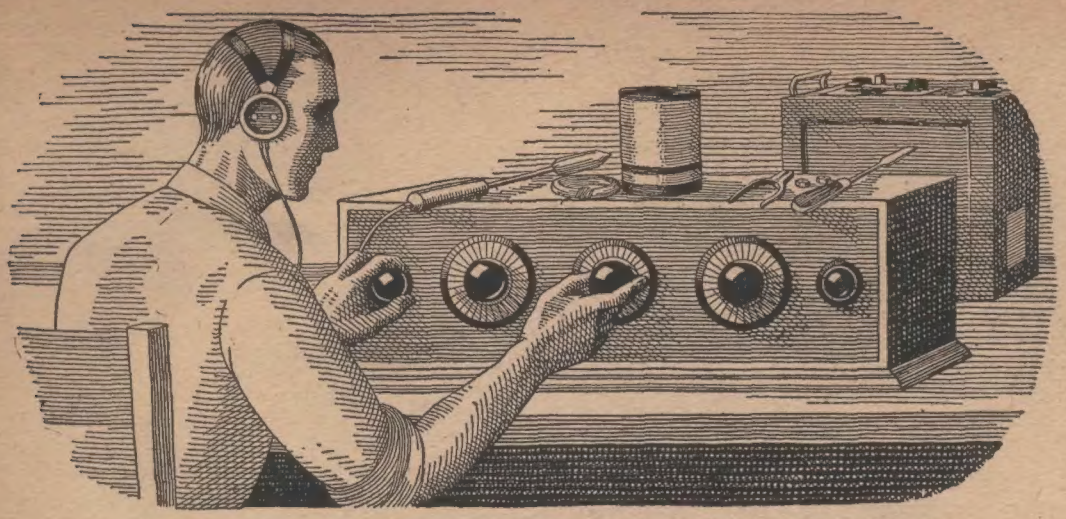
AMAZING STORIES is published on the 5th of each preceding month. There are 12 numbers per year. Subscription price is $2.50 a year in U. S. and possessions. Canada and foreign countries $3.00 a year U. S. coin as well as U. S. stamps accepted (no foreign coin or stamps). Single copies, 25 cents each. All communications and contributions to this journal should be addressed to Editor AMAZING STORIES, 230 Fifth Ave., New York, N. Y. Unaccepted contributions cannot be returned unless full postage is included. Publishers are not responsible for Mss. lost. ALL accepted contributions are paid for on publication.

AMAZING STORIES Monthly. Entered as second class matter March 10, 1926, by the Post Office at New York, N. Y., under the act of March 3, 1879. Title Registered U. S. Patent Office. Copyright, 1927, by E. P. Co., Inc., New York. The text and illustrations of this Magazine are copyrighted and must not be reproduced without giving full credit to the publication. AMAZING STORIES is for sale at all newsstands in the United States and Canada. European Agents, S. J. Wise Et Cie, 40 Place Verte, Antwerp, Belgium. Printed in U. S. A.

General Advertising Dept., 230 Fifth Avenue, New York City.
Advertising Representatives: Rhodes & Leisenring
New York Office: 624 Graybar Building
Chicago Office: 307 North Michigan Avenue



If all the Radio sets I've "fooled" with in my time were piled on top of each other, they'd reach about halfway to Mars. The trouble with me was that I thought I knew so much about Radio that I really didn't know the first thing. I thought Radio was a plaything—that was all I could see in it for me.

I Thought Radio Was a Plaything

But Now My Eyes Are Opened, And I'm Making Over $100 a Week!

$50 a week! Man alive, just one year ago a salary that big would have been the height of my ambition.

Twelve months ago I was scrimping along on starvation wages, just barely making both ends meet. It was the same old story—a little job, a salary just as small as the job, while I myself had been dragging along in the rut so long I couldn't see over the sides.

If you'd told me a year ago that in twelve months' time I would be making $100 and more every week in the Radio business—whew! I know I'd have thought you were crazy. But that's the sort of money I'm pulling down right now—and in the future I expect even more. Why only today—

But I'm getting ahead of my story. I was hard up a year ago because I was kidding myself, that's all—not because I had to be. I could have been holding then the same sort of job I'm holding now, if I'd only been wise to myself. If you've fooled around with Radio, but never thought of it as a serious business, maybe you're in just the same boat I was. If so, you'll want to read how my eyes were opened for me.

When broadcasting first became the rage, several years ago, I first began my dabbling with the new art of Radio. I was "nuts" about the subject, like many thousands of other fellows all over the country. And no wonder! There's a fascination—something that grabs hold of a fellow—about twirling a little knob and suddenly listening to a voice speaking a thousand miles away. Twirling it a little more and listening to the mysterious dots and dashes of steamers far at sea. Even today I get a thrill from this strange force. In those days, many times I stayed up almost the whole night trying for DX. Many times I missed supper because I couldn't be dragged away from the latest circuit I was trying out.

I never seemed to get very far with it, though. I used to read the Radio magazines and occasionally a Radio book, but I never understood the subject very clearly, and lots of things I didn't see through at all.

So, up to a year ago, I was just a dabbler—I thought Radio was a plaything. I never realized what an enormous fast-growing industry Radio had come to be—employing thousands and thousands of trained men. I usually stayed home in the evenings after work, because I didn't make enough money to go out very much. And generally during the evening I'd tinker a little with Radio—a set of my own or some friend's. I even made a little spare change this way, which helped a lot, but I didn't know enough to go very far with such work.

And as for the idea that a splendid Radio job might be mine, if I made a little effort to prepare for it—such an idea never entered my head. When a friend suggested it to me one year ago, I laughed at him.

"You're kidding me," I said.

"I'm not," he replied. "Take a look at this ad."

He pointed to a page ad in a magazine, an advertisement I'd seen many times but just passed up without thinking, never dreaming it applied to me. This time I read the ad carefully. It told of many big opportunities for trained men to succeed in the great new Radio field. With the advertisement was a coupon offering a big free book full of information. I sent the coupon in, and in a few days received a handsome 64-page book, printed in two colors, telling all about the opportunities in the Radio field and how a man can prepare quickly and easily at home to take advantage of these opportunities. Well, it was a revelation to me. I read the book carefully, and when I finished it I made my decision.

What's happened in the twelve months since that day, as I've already told you, seems almost like a dream to me now. For ten of those twelve months, I've had a Radio business of my own. At first, of course, I started it as a little proposition on the side, under the guidance of the National Radio Institute, the outfit that gave me my Radio training. It wasn't long before I was getting so much to do in the Radio line that I quit my measly little clerical job, and devoted my full time to my Radio business.

Since that time I've gone right on up, always under the watchful guidance of my friends at the National Radio Institute. They would have given me just as much help, too, if I had wanted to follow some other line of Radio besides building my own retail business—such as broadcasting, manufacturing, experimenting, sea operating, or any one of the score of lines they prepare you for. And to think that until that day I sent for their eye-opening book, I'd been wailing "I never had a chance!"

Now I'm making, as I told you before, over $100 a week. And I know the future holds even more, for Radio is one of the most progressive, fastest-growing businesses in the world today. And it's work that I like—work a man can get interested in.

Here's a real tip. You may not be as bad off as I was. But think it over—are you satisfied? Are you making enough money, at work that you like? Would you sign a contract to stay where you are now for the next ten years—making the same money? If not, you'd better be doing something about it instead of drifting.

This new Radio game is a live-wire field of golden rewards. The work, in any of the 20 different lines of Radio, is fascinating, absorbing, well paid. The National Radio Institute—oldest and largest Radio home-study school in the world—will train you inexpensively in your own home to know Radio from A to Z and to increase your earnings in the Radio field.

Take another tip—no matter what your plans are, no matter how much or how little you know about Radio—clip the coupon below and look their free book over. It is filled with interesting facts, figures, and photos, and the information it will give you is worth a few minutes of anybody's time. You will place yourself under no obligation—the book is free, and is gladly sent to any one who wants to know about Radio. Just address J. E. Smith, President, National Radio Institute, Dept. 44A2, Washington, D. C.

J. E. SMITH, President,
National Radio Institute,
Dept. 44A2, Washington, D. C.

Dear Mr. Smith:

Please send me your 64-page free book, printed in two colors, giving all information about the opportunities in Radio and how I can learn quickly and easily at home to take advantage of them. I understand this request places me under no obligation, and that no salesman will call on me.

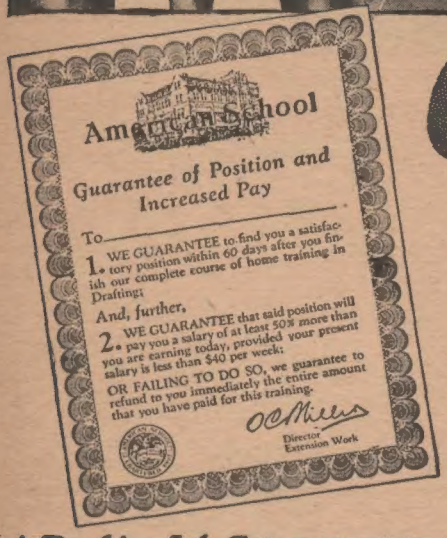
Name.....

Address.....

Town.....State.....

Occupation.....

Training
PREPARING you to fill a fine Drafting job at a substantial raise in pay . . .
Employment
FINDING you the better-paid position and PLACING you in it, or money refunded . . . .


American School
Guarantee of Position and Increased Pay
To
1. WE GUARANTEE to find you a satisfactory position within 60 days after you finish our complete course of home training in Drafting;
And, further,
2. WE GUARANTEE that said position will pay you a salary of at least 50% more than you are earning today, provided your present salary is less than $40 per week;
OR FAILING TO DO SO, we guarantee to refund to you immediately the entire amount that you have paid for this training.
O. C. Miller
Director Extension Work

Come into Drafting!

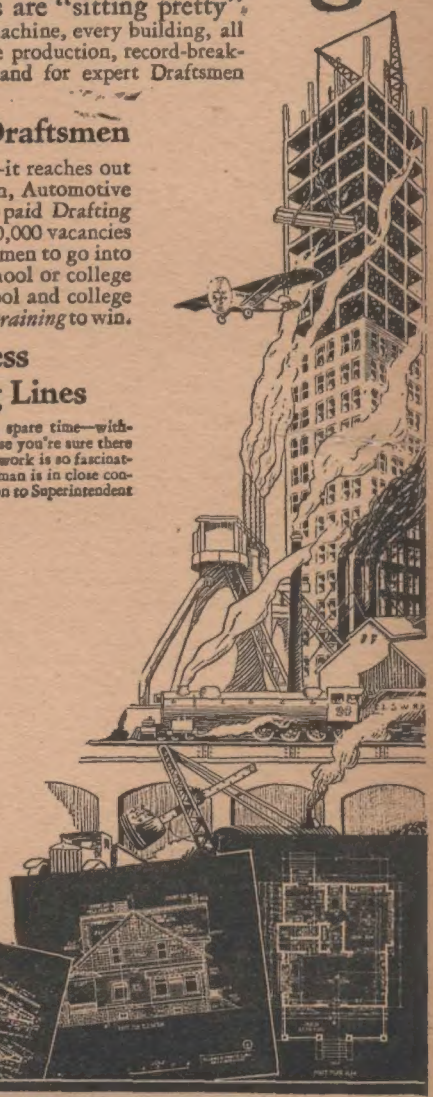
Men who can read blue-prints and draw plans are "sitting pretty" these days. No wonder, when you consider that every machine, every building, all industrial activities *start* on the Drafting table! Intensive production, record-breaking construction operations, have created a great demand for expert Draftsmen capable of designing and calculating original plans.

$50 to $125 a week paid to Expert Draftsmen

Get this point—that Drafting isn't just *one* line of work—it reaches out into the Electrical, Manufacturing, Building Construction, Automotive and Structural industries. That is why you'll find well-paid Drafting positions advertised in all industrial centers of the U. S. 70,000 vacancies reported in the past 12 months. And that is why I advise men to go into Drafting, particularly if handicapped by lack of high-school or college education. Today you are in competition with high-school and college graduates for the better-paid jobs. You must have *specialized training* to win.

The Entering Wedge to Success in all Building and Manufacturing Lines

I recommend Drafting, too, because it can be QUICKLY learned at home, in spare time—without quitting your job, without losing a day's time or a dollar in pay. Because you're sure there will be a good position waiting when you are ready for it. And because the work is so fascinating and offers better-than-ordinary chances for advancement. For the Draftsman is in close contact with important work and BIG MEN, and he is right in line for promotion to Superintendent and other executive positions.



A Drafting Job GUARANTEED paying 50% more than you earn today —or not a penny of cost!

Now, at a cost you can afford, on terms of only $6 per month, you can actually BUY a fine Drafting position and a substantial increase in pay. A million-dollar institution guarantees both—the training, then the employment. *Under money-back penalty.*

This agreement brings you your SECOND CHANCE. To repair a neglected education, to specialize, to change to a line where you can get ahead more rapidly. Read it, and investigate it!

The American School

Chartered 30 years as an EDUCATIONAL institution and like the best resident schools and colleges, conducted NOT FOR PROFIT. We offer complete, thorough up-to-date instruction, built by 200 leading Educators, Engineers and Executives. A unique instruction, built to meet the specifications of well-paid jobs as laid down by employers themselves, yet simplified for ready understanding by men with only common schooling.

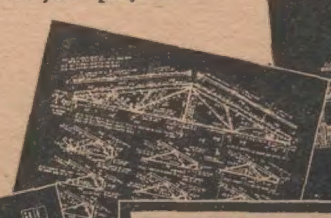
O. C. MILLER
Director Extension Work

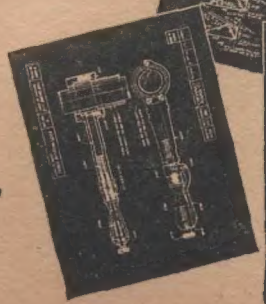
And we are the first in the home study field to recognize the need of giving a COMPLETE SERVICE to ambitious men —*training, plus employment.* Which takes you as you are, supplies the equipment you lack, and lands you in the better job you seek. Without risk to you!

3 Drafting Lessons Actually FREE!

to prove you can learn at home, in your spare time!

You will never have a more serious personal problem than deciding your future life-work—so we merely urge you to LOOK INTO Drafting. See how you like it, see if you learn as readily as most men do, get the facts about the opportunities, the salaries paid, the jobs open, the chances for promotion. This is why, on receipt of your name, we will send you *the first three lessons of our Drafting course* without cost or obligation.





O. C. MILLER, Director Extension Work,
THE AMERICAN SCHOOL,
Dept. D-9294 Drexel Ave. & 58th St.,
Chicago, Illinois

Please send without cost or obligation:

1. Three Drafting Lessons.
2. Facts about the opportunities in Drafting.
3. Your Guarantee to train and place me under money-back penalty.

Name_____

Address_____

Age_____ Occupation_____

The American School

Dept. D-9294 Drexel Ave. & 58th St., Chicago, Ill.

VOLUME 3

AMAZING STORIES

THE MAGAZINE OF SCIENTIFICTION

DECEMBER, 1928 No. 9

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Extravagant Fiction Today - - - - - - - - - Cold Fact Tomorrow

AN AMAZING PHENOMENON

By HUGO GERNSBACK

AMONG the most amazing phenomena that human beings experience are those of premonition and another which, for the lack of a better name, might be called "memory phantom."

In the current issue of AMAZING STORIES, one of our authors advances an ingenious idea as to a possible explanation of these phenomena.

When it comes to the occurrence of premonition, I am of the sincere belief that there is no scientific basis for the existence of such a supposed phenomenon. We all hear, frequently, that people have certain premonitions, but the trouble is that they are most difficult to prove.

I, myself, have had any number of premonitions in the course of my life, but none of them actually came about. In other words, practically all of them were false alarms.

The nearest one that came near being a fulfillment was only partially fulfilled and had nothing to do with myself at all.

I had gone to Europe on the *Lusitania* before the War, and an hour or two before the boat docked at Liverpool, I remember that I had an exceedingly strong premonition that something dreadful was going to happen. Something did happen, but it was neither terrifying nor dreadful. Something happened to the landing bridge when it was hoisted up and the ropes broke and the bridge fell down with a crash, slightly injuring two stevedores.

Similar occurrences probably happen to most of us, but it is a fact that most of our premonitions, if not all of them, never come about, and if they do come about, we must call them simply coincidences.

If, in a lifetime, an individual has fifty premonitions and out of the fifty, one comes near to being true, it would hardly be a convincing proof that there was any scientific reason for supposing that an event could be registered on the human consciousness hours and days before it happened.

On the other hand, the phenomenon of *memory phantoms* may have an actual foundation of fact, and there may be some scientific basis for it.

The theory which I advance in connection with this phenomenon, I believe, is new, and while it cannot be proven, at least there seems to be a slight scientific foundation for it, in some instances. My theory will not cover all facts in the case, of course, but will only do so partially.

We all know of the sensation that comes over us in the most unexpected quarters when we have a feeling that we have seen the same scene or experienced the self-same thing before. We actually know that we have experienced the self-same thing or have seen exactly the same scene or have done exactly the same thing.

I especially remember a particularly strong impression that I had, some years ago, when my train sped through a Midwest plain. It was the first time that I had ever made that particular trip, and I distinctly remember looking with amazement at a certain scene which composed an unusual configuration of the terrain, a certain little river and other landmarks. I was immediately struck with the conviction that I had seen exactly the same scene some time before. The feeling was so real that even today I cannot rid myself of the thought that I actually, some time in the dim past, saw that scene. Nor is it impossible that I did see the scene. It may have been a thousand or five thousand years ago that I actually did see it, and this is how I account for it and how I account for similar experiences that are had by most of us:

There are about a billion and a half human beings on this planet. They live an average of forty or fifty years, and then all of them vanish to be replaced by a new crop. This goes on, and has gone on, of course, for millions of years. What becomes of the physical bodies after they die? We say they are being decomposed and become part and parcel of our earth's crust again. Some are buried six feet below the ground, others who die as in combat, adventure or otherwise perish in the open, simply decompose where they fall and their remains are scattered to the four winds.

Whatever happens, one fact is quite certain, and that is, that *in our own physical makeup will be found the actual physical remains of some of our predecessors.* That these remains are atomically small, makes no difference. The fact remains that the succeeding crops of humans, for untold ages, have decomposed, chemically, and are again chemically absorbed into other combinations, which later on become parts of human beings once more. This, of course, is not re-incarnation or anything like it.

My theory, then, in short is that a certain human being, not related to me at all, had, perhaps 5,000 years before me, seen a certain scene. That particular picture became engraved in his consciousness, and consequently made a record in his brain. It is quite true that after death all sensations stop, but it is possibly quite true that some particle of my predecessor's brain may eventually find its way into my brain in the course of the passage of time. For many years, this particle that carried the original impression, may rest in my brain without acting at all, but when I see a certain scene, the particle becomes active in my brain and sends the message that I have seen the particular scene once before.

And this is, perhaps, the most plausible explanation of similar occurrences which are viewed by us through our own eyes, *but through the memory phantoms of other human beings* who have long died but have become crystallized into us.

Offhand, this may seem a very fantastic theory, but it is certainly not more fantastic than the mechanics of the brain and the mechanics of memory itself. When you stop to consider what memory really is, and how incessantly impressions are made upon the brain, and that really no physical impressions are made at all, neither in our thinking nor in our memory, the subject probably becomes less difficult. It evolves itself down to, perhaps, the vibration of certain cells in our brain and if the vibration is correct, either by will or outside influences, we then think or we can recall memories.

A violent blow to our head renders us unconscious, because the brain cells are probably paralyzed and can no longer vibrate the same as they usually do.

I give the theory for what it is worth, and while it very likely does not fit all cases, it may shed some light upon a most interesting and amazing phenomenon.

Mr. Hugo Gernsback speaks every Tuesday at 9.30 P. M. from WRNY (326 meters) and W2XAL (30.91 meters) on various scientific subjects.

The APPENDIX and the SPECTACLES

By Miles J. Breuer M.D.

Author of: "The Riot at Sanderac," "The Puzzle Duel," etc.

OLD Cladgett, President of the First National Bank of Collegeburg, scowled across the mahogany table at the miserable young man. He was all hunched up into great rolls and hanging pouches, and he scowled till the room grew gloomy and the ceiling seemed to lower.

"I'm running a bank, not a charity club," he growled, planting his fist on the table.

Bookstrom winced, and then controlled himself with a little shiver.

"But sir," he protested, "all I ask for is an extension of time on this note. I could easily pay it out in three or four years. If you force me to pay it now, I shall have to give up my medical course."

Harsh, inchoate, guttural noises issued from Cladgett's throat.

"This bank isn't looking after little boys and their dreams," he snarled. "This note is due and you pay it. You're able-bodied and can work."

Mechanically, as in a daze, Bookstrom took out a wallet and counted out the money. When the sum was complete, he had ten dollars left. The hope that had spurred him on through several years of hardship and difficulty, the hope of graduating as a physician and having a practice of his own, now was gone. He was at the end of his resources. Once the medical course was interrupted, he knew there was no hope of getting back to it. Nowadays the study of medicine is too strenuous; there is no dallying on the path to an M.D. degree.

He went straight over to the University to apply for an instructorship in Applied Mathematics that had recently been offered to him.

OUR well-known author treats us to a different sort of Fourth Dimensional story here. Incidently, it's a very clever psychological study—one which will leave you chuckling. And you may well wonder if the Fourth Dimension is exploited, whether we will have situations such as the one so well told of in this tale.

IN the movies and in the novels, an ogre like Cladgett usually meets with some kind of retribution before long. The Black Hand gets him or a wronged debtor poisons him, or a brick house collapses on his head. But Cladgett lived along in Collegeburg, growing more and more prosperous. He was bound to grow wealthy, because he took all he could get from everybody and never gave anybody anything. He kept growing a little grayer and a little fatter; and seemed to derive more and more pleasure and happiness from preying financially on his fellow-beings. And he seemed as safe as the Rock of Gibraltar.

Then, after fifteen years, a sudden attack of acute appendicitis got him. That morning he had sat at his desk and dictated letters to his directors commanding them to be present at a meeting four days hence without fail. The bank was taking over a big estate as trustee, and unless each director signed the contract personally, the deal was lost and with it a fat fee. In the afternoon he was in bed groaning with pain and cursing the doctor for not curing him at once.

"Appendicitis!" he shrieked. "Impossible!"

Dr. Banza bowed and said nothing. With delicate finger-tips he felt of the muscles in the right lower quadrant of the abdomen. He shook his head over the thermometer that he took out of the sick man's mouth. He withdrew a drop of blood from the patient's finger-tip into a tiny pipette and took it away with him.

He was back in an hour, and Cladgett read the verdict in his face.

"Operation!" he yowled like a whipped boy. "I can't have an operation! I'll die!"

He seemed to consider it the doctor's fault that he had appendicitis and would have to have an operation.

"Say," he said more rationally, as an idea occurred to him. "Do you realize that I've got an important directors' meeting in three days? I can't miss that for any operation. Now listen; be sensible. I'll give you a thousand dollars if you get me to that meeting in good shape."

Dr. Banza shrugged his shoulders.

"I'm going to dinner now," he said in the voice that one uses to a peevish child. "You have two or three hours in which to think it over. By that time I'm afraid you will be an emergency."

Dr. Banza sauntered thoughtfully over to the College Tavern, and walking in, looked around for a table at which to eat his dinner. He felt his shoulder touched.

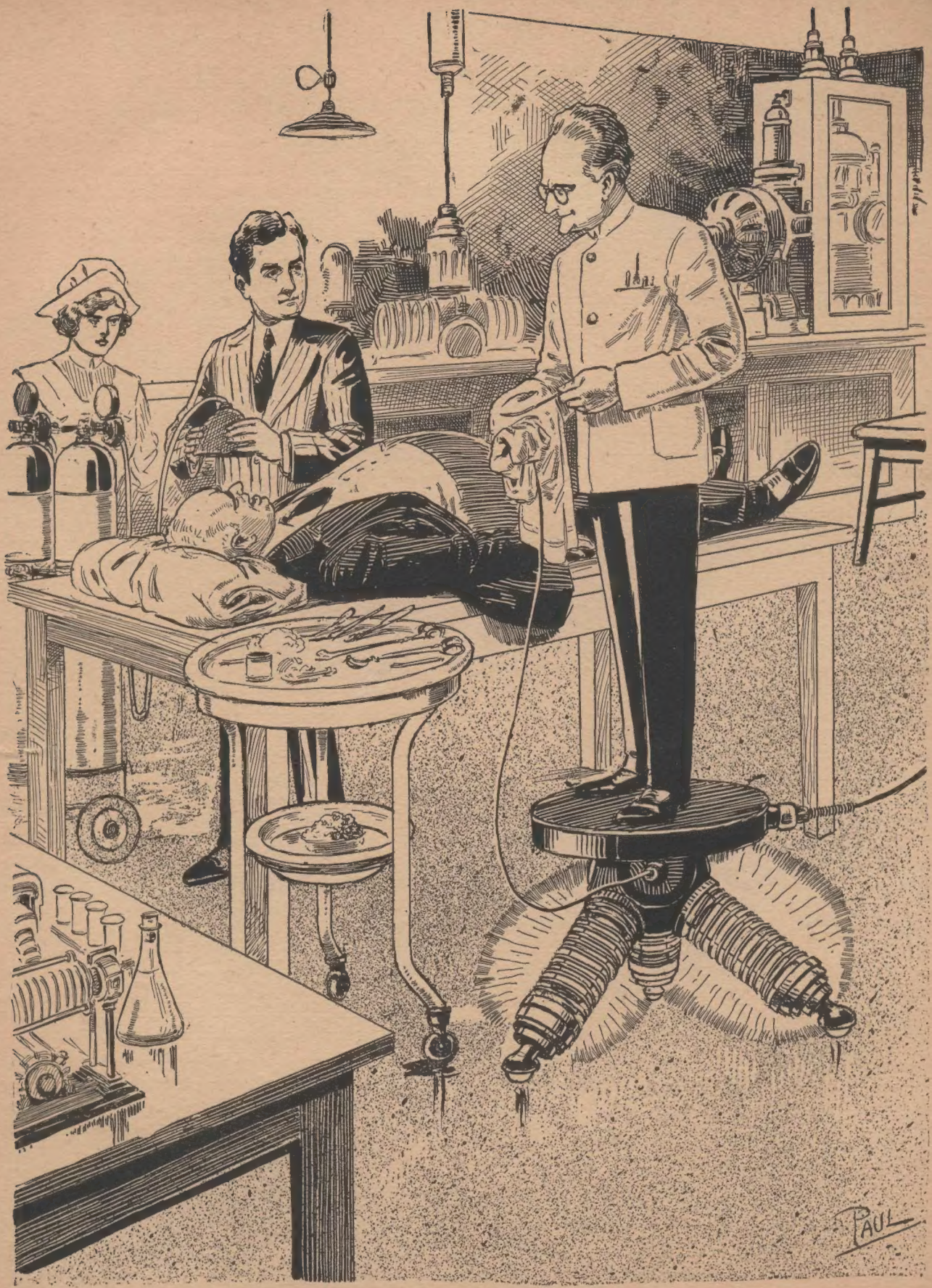
"Sit down and eat with me," invited his unnoticed friend.

"Why, hello Bookstrom!" he cried warmly, as he perceived who it was.

"Hello yourself," returned Bookstrom, now portly and cheerful enough, with a little twinkle in each eye.

"But what's the matter? You look dark and discouraged."

So, over the dinner, Banza told his friend about the annoying dilemma with the obdurate and irascible



Cladgett quieted down. Bookstrom scrubbed his hands, and wrapped his right one in a sterile towel in order to manipulate the machine. He stepped on the rubber mat . . .

Cladgett, who threatened certain ruin to his career.

"I feel like telling him to go to hell," Dr. Banza concluded.

Bookstrom sat a long time in silent thought, his elbows leaned on the table, sizzling a little tune through his cupped hands.

"Just the thing I've been looking for," he said at last slowly, as though he had come to a difficult decision. "Do you want to listen to a little lecture, Banza? Then you can decide whether I can help you or not?"

"If you can help me, you're some medicine-man. Shoot the lecture, though." Dr. Banza leaned back and waited, with much outward show of patience.

"You remember," opened Bookstrom, "that I had a couple of years of medical college work, and had to quit. That accounts for my having gotten this idea so suddenly just now.

"My present title of Professor of Applied Mathematics is not an empty one. I've applied some mathematics this time, I'll tell the world.

"You hear a lot about the Fourth Dimension nowadays. Most people snort when you mention it. Some point a finger at you or grab your coat lapel, and ask you what it is. *I don't know* what it is! Don't get to imagining that I've discovered what the fourth dimension is. But, I don't know what light is, or what gravitation is, except in a 'pure-mathematics' sense. Yet, I utilize light and gravitation in a practical way every day, do I not?

"Well, I've learned how to utilize the fourth dimension without knowing what it is. And here's how we can apply it to your Cladgett. Only, I've got an ancient grudge against that bird, and he's got to pay me back in real money for it, right now. You take your thousand and get a thousand for me——.

"Now, how can we use the fourth dimension to help him? In order to explain it, I'll have to illustrate with an example from a two-dimensional plane of existence. Suppose you and Cladgett were two-dimensional beings confined to the plane of this sheet of paper. You could move about in any direction upon the paper, but you could not get upwards off of it. Here is Cladgett. You can go all around him, but you can't jump over him, any more than you can turn yourself inside out.

"The only way that you, a two-dimensional surgeon can remove an appendix from this two-dimensional wretch, is to make a hole somewhere in his circumference, reach in, separate the doojigger from its attachments, and pull it out, all limited to the surface of the paper. Is that plain so far?"

Banza nodded without interrupting.

"But, suppose some Professor of Applied Mathematics arranges it so that you can rise slightly, infinitely slightly above the plane of the paper. Then you can get Cladgett's appendix out without making any break in his circumference. All you do is to get up above him, locate your appendix, and reach down or lower yourself down to the original plane, and whisk out the appendix.

"He, being confined to the two-dimensional plane of the paper, cannot see how you do it, or comprehend how. But here you are, back down to the plane of the paper again beside Cladgett, with the appendix in your hand, and he marvels how you did it."

"Brilliant reasoning," Dr. Banza admitted. "But unfortunately for its value in this emergency, Cladgett is a three-dimensional old hulk and so am I."

"To proceed," Bookstrom made a show of ignoring the interruption, "suppose I had constructed an elevator that could lift you a little, ever so little along the fourth dimension, at right angles to the other three. Then you could reach over and hook out Cladgett's appendix, without making any abdominal wound."

BOOKSTROM stopped and smiled. Banza jumped to his feet.

"Well, dammit, have you?" he demanded. People in the Tavern were turning around and looking at them.

"Come and see!"

They hooked arms and went up to Bookstrom's laboratory. Apparently Banza was satisfied with what he saw, for in five minutes he came racing out of the door, and called a taxi and had himself whirled to Cladgett's house.

There he had some trouble about the two thousand dollars in advance. It was an unethical thing to demand, but he was a clever enough psychologist to sense and respect Bookstrom's reasons.

"I've found a specialist," he announced, "and am personally convinced that he can do what you want. With the next two days quiet in bed and subsequent care in diet, you can get to the meeting."

"Go ahead then," moaned Cladgett.

"But this man wants a thousand dollars, and insists that his thousand and mine must both be paid in advance," said Banza meekly.

Cladgett rose up in bed.

"Oh, you doctors are a bunch of robbers!" he shouted. Then he groaned and fell back again. The appendicitis was too much for him. A pain as sustained and long-enduring as that of an acute appendicitis will compel anyone to do anything. Soon Cladgett and a nurse were in an ambulance speeding toward the University, and Banza had two checks in his pocket.

Bookstrom was all ready. A half dozen simple surgical instruments to suffice for actually detaching the appendix, were sterilized and covered. He put Cladgett on a long wooden table and asked the nurse to sit at his head with a chloroform mask, with orders to use it if he complained. He directed Banza to scrub his hands. Beside Cladgett was the "elevator."

There wasn't much to the machine. All great things are simple, I suppose. There were three trussed beams of aluminum at right-angles to each other, each with a cylinder and plunger, and from them, toggles coming together at a point where there was a sort of "universal joint" topped by a mat of thick rubber. That was all.

"You mean for me to get on that thing and be shoved somewhere into nowhere——?" Banza looked worried.

"I won't insist," Bookstrom smiled.

"No thanks," Banza backed away with alacrity. "I'll give him whatever anesthetic he needs." Banza was no

doubt uncomfortable with responsibility, for the patient was seriously ill.

"Fine!" Bookstrom seemed to be enjoying the situation thoroughly. "I still know how to whack off an appendix. That's elementary surgery, amateur stuff."

A storm of protest broke from Cladgett.

"I don't want to be operated. You promised——"; he wrung his hands and beat his heels upon the table.

"We promised," said Bookstrom sweetly, "that we would not open you up. You'll never find a scratch on yourself."

Cladgett quieted down. Bookstrom scrubbed his hands, and wrapped his right one in a sterile towel in order to manipulate the machine. He stepped on the rubber mat, and in a moment, Dr. Banza and the nurse were amazed to see him click suddenly out of sight. Click! and he was not there! Before they recovered from their astonishment, Cladgett began to complain. Dr. Banza had to start giving chloroform. He gave it slowly and cautiously, while Cladgett groaned and cursed and threshed himself about.

"Lie still, you fool!" shouted Bookstrom's voice in a preoccupied way, just beside them. It made their flesh creep, for he was not there.

Gradually the patient quieted down and breathed deeply, and the doctor and the nurse took a breath of relief, and had time to wonder about everything. There was another click! and there stood Bookstrom with a tray of bloody instruments in his hand.

"Pippin!" he exclaimed enthusiastically, pointing to the appendix. It was swollen to the size of a thumb, with purple blotches of congestion, black areas of gangrene, and yellow patches of fibrin. "You're not such a bad diagnostician, Banza!"

"Put it in formalin——to show him how sick he was," suggested Banza.

"You'll have a fat time proving to anybody that that was taken out of *him*. Forget it, and deposit your check. Some day when you get up your nerve, let me show you how it feels to see the inside of a man, all at once, everything working."

CLADGETT was much better the next day. His pain was all gone and he did not feel the terrible, prostrating sickness of the day before.

As soon as he awoke he felt himself all over for an operation wound, and finding none, mumbled to himself surlily for a while. The second day his fever was gone and he was ravenously hungry. On the third day he was merely tired. On the fourth day he went to the directors' meeting in his own car, grumbling that he had never had any appendicitis anyhow, and that the doctors had defrauded him of two thousand dollars.

"Got a notion to sue you for damages. May do it yet!" he snarled at Dr. Banza. "I'll include the value of my spectacles. You smashed them for me somewhere. Damn carelessness."

Dr. Banza bowed himself out.

"The next time he needs a doctor," he said to himself, " he can call one from Madagascar before I'll go to see him."

But Dr. Banza was no different from any other good physician. It wasn't two weeks before Cladgett called him, and again he was "fool enough to go," as he himself expressed it.

This time Cladgett was not in bed. He was nursing his hemispherical abdomen in an arm-chair.

"Thought you said you'd cure me of this appendicitis!" he wheezed antagonistically.

"Aha, so you *did* have appendicitis?" thought the doctor to himself. Aloud, he asked Cladgett to describe his symptoms, which Cladgett did in the popular way.

"I think it's adhesions!" he snapped.

"Adhesions exist chiefly in the brains of the laity, and in the conversation of doctors too lazy to make a diagnosis." Dr. Banza's courteous patience was deserting him.

He temperatured and pulsed his patient, gently palpated the abdominal muscles, and counted the leucocytes in a drop of blood.

"You do have a tender spot," he mused; "and possibly a slight palpable mass. But no signs of any infectious process. No muscle rigidity. Is it getting worse?"

"Getting worse every day!" he groaned histrionically. "What is it, doc?"

Dr. Banza resisted heroically the temptation to tell him that he had carcinoma of the ovary, and said instead with studied care:

"I can't be quite sure till we have an X-ray. Can you come down to the office?"

With much grunting and wheezing, Cladgett got up to the office and up on the raidographic table. Dr. Banza made a trial exposure and then several other films. He remained in the developing room for an interminable length of time, and then came out with a red face.

"Well! What?" yapped Cladgett.

"Oh, just a trifling matter of no importance. Come, get into the car with me. We'll drive over to Professor Bookstrom's laboratory, and in a moment we'll have you permanently relieved and feeling good."

"I'll not go to that charlatan again!" roared Cladgett. "And you doctors are always trying to talk all around the bush and refusing to tell people the truth. You can't work that gag on me! I want to know exactly!" He shook both arms at Banza.

"Why, really!" Dr. Banza acted very much embarrassed. "It's nothing that cannot be corrected in a few seconds——."

"Dammit!" shrieked Cladgett. "Gimme that X-ray picture, or I'll smash up your place!"

Dr. Banza went in and got the wet film clipped in its frame. He led the way to the outside door. Cladgett angirly followed him thither and there received the film. Banza backed away, while Cladgett held the negative up to the light. There, very plainly visible in the right lower quadrant of the abdomen was a pair of old-fashioned *pince-nez* spectacles!

Strange heavings and tremors seemed to traverse Cladgett's bulk, showing through his clothes. He shook and undulated and heaved suddenly in spots. His face turned alternately white and purple; his jaw worked up and down, and his mouth opened and shut convulsively,

though no sound came forth. Suddenly he turned and stamped out of the building, carrying the wet film with him.

The old man was a pretty good judge of character, or he never would have made the money he did. In some subconscious way he had realized that Bookstrom must be the man to see about this thing.

Banza telephoned Bookstrom at once and told him the details.

"How unfortunate!" Bookstrom exclaimed. There was a suspicious note in his voice. That solicitude for Cladgett could hardly have been genuine.

"He's coming over there!" warned Banza.

"I shall be proud to receive such a distinguished guest."

That was all Banza was able to accomplish. He was sick with consternation and anxiety.

Bookstrom could hear Cladgett's thunderous approach down the hall. Then the door burst open and a chair went down, followed by a rack of charts and a tall case full of models. Cladgett seemed to derive some satisfaction from the havoc, this time little dreaming that Bookstrom was quite capable of setting the stage for just such a show. "You——you——" sputtered Cladgett, still unable to speak coherently.

"Too bad; too bad," consoled Bookstrom kindly. "Let's see your roentgenogram."

"Ah, how interesting!" Bookstrom could put vast enthusiasm into his voice. "The question is, I suppose, how they got in there?" He looked back and forth from Cladgett's protruding hemisphere to the spectacles on the X-ray film, as if to imply that in such an immense vault there surely ought to be room for such a trifling thing as a pair of spectacles.

"You put them there, you crook, you scoundrel, you robber, you dirty thief!" The "dirty thief" came out in a high falsetto shriek.

"You do me much honor," Bookstrom bowed. "That would be a 'stunt' I might say, to be proud of."

"You don't deny it, do you?" Cladgett suddenly calmed down and spoke in acidly triumphant tones.

"It strikes me," Bookstrom mused, "that this is something that would be difficult either to prove or to deny."

"I've got the goods on you." Cladgett spoke coldly, just as he had on that occasion fifteen years before. "You either pay me fifty thousand dollars damages, or this goes to court at once."

"My dear *Sir!*" Bookstrom bowed gravely. "You or anyone else have a standing invitation to go through my effects, and if you find more than a hundred dollars, you are welcome to half of it, if you give me the other half."

Cladgett did not know how to reply to this.

"I'm suing you for damages at once!" His words came like blows from a pile-driver.

Bookstrom bowed him out with a smile.

THE damage suit created considerable flare in the headlines. A pair of spectacles left in a patient's abdomen at operation! That was a morsel such as the public had not had to scandalize over for some time! Newspapers dug up all the details, even to the history of the forced payment on the note fifteen years before and the disappointed medical student; and the fact that the operation had been performed in secret and at night, in the laboratory of a man who was not a licensed medical practitioner, for Bookstrom's title of "doctor" was a philosophical, not a medical one. The public gloated and licked its chops in anticipation of more morsels at the trial.

But no such treat ever came off. Immediately the suit was filed Bookstrom's counsel requested permission to examine thoroughly the person of the plaintiff. This was granted. The counsel then quietly and privately called the judge's attention to the fact that the plaintiff's body contained no scars or marks of operation of any kind; therefore, it was evident that he had never been operated upon and, therefore, nothing could have been left in his abdomen. The judge held an informal preliminary hearing and threw the case out of court. He admitted that there were curious phases to it, but he was busy and tired, and his docket was so full that it made him nervous; he was glad to forget anything that was technically settled.

Cladgett continued to grow sicker. The pain and the lump in his side increased. In another two weeks he was a miserable man. He still managed to be up and about a little, but his face was drawn from suffering (and rage), and pains racked him constantly. He had lost twenty-five pounds in weight, and looked like a wretched shadow of his former self.

One day he thrust himself into Bookstrom's office. Bookstrom dismissed the stenographer and the two student-assistants, and faced Cladgett blandly.

"Banza says you can fix this up somehow," he said, and it sounded like "gr-r-r-ump, gr-r-r-ump, r-r-ump." "I've decided to let you go ahead."

"Very kind of you," Bookstrom purred. "I ought to feel humbly grateful for as big a favor as that. As a matter of fact, I've decided to *let* the Sultan of Sulu go jump in the lake. But I've a lurking suspicion that he isn't going to do it."

Cladgett sat and stared at him awhile, and then picked himself up and stumped out, grumbling and groaning.

The next day Dr. Banza brought him into Dr. Bookstrom's laboratory. He eased himself down into a chair before saying anything.

"I'm convinced that Banza's right and that you can help me. Now what's your robber's price?"

"It's a highway robber's price, with the accent on the high," murmured Bookstrom deprecatingly.

"Well, out with it, you——" there Cladgett wisely checked himself.

"I ask nothing whatever for myself," said Bookstrom, suddenly becoming serious. "But if you want me to get those spectacles out of you, right here and now you settle a sum to found a Students' Fund to loan money to worthy and needy scientific students, which they may pay back when they are established and earning money. I think when you spoke to me about a damage suit you mentioned the sum of fifty thousand dollars. Let's call it that."

"Fifty thousand dollars!" screamed Cladgett in a

high falsetto. He was weak and unstable. "That's preposterous! That's criminal extortion."

"This transaction is not of my seeking," Bookstrom suggested.

"You've fixed it all up on me," Cladgett wailed, but his voice sank toward the end.

"Tell that to the judge. Or, go to a surgeon and have him open you up and take them out. That would come cheaper."

"Operation!" shrieked Cladgett. "I can't stand an operation."

He looked desperately at Banza, but there was no hope there.

"This seems to me a wonderful opportunity," Banza said, "for you to do a public service and distinguish yourself in the community. I'm sure that amount of money will not affect you seriously."

Cladgett started for the door, and then groaned and fell back heavily into his chair. He sat groaning for awhile, his suffering being mental as well as physical; finally he reached into his pocket for his pen and his check-book. He kept on groaning as he wrote out a check and flung it on the table.

"Now, damn you, help me!" he yelped.

They put him on the table.

"Banza, you scrub. You deserve to see this," directed Bookstrom.

So Banza stepped on the rubber mat and Bookstrom instructed him.

"Move this switch one button at a time. That will always raise you a notch. Look around each time until you get it just right."

With the first click Banza disappeared, just as people vanish suddenly in the movies. Cladgett groaned and squirmed, and then was quiet. With another click Banza reappeared, and in his hand was a pair of old-fashioned *pince-nez* spectacles, moist and covered with a grayish film. He held them toward Cladgett, who grabbed them and mumbled something.

"Can you imagine!" breathed Banza, "standing in the center of a sphere and seeing all the abdominal organs around you at once? Something like that, it seemed; not exactly either. There above my head were the coils of the small intestine. To the right was the cecum with the spectacles beside it; to my left the sigmoid and the muscles attached to the ilium, and beneath my feet the peritoneum of the anterior abdominal wall. But, I was terribly dizzy for some reason; I could not stand it very long, much as I should have liked to remain inside of him for awhile——"

"But, you weren't inside of him," corrected Bookstrom.

Banza stared blankly.

"But, I've just told you. There I was inside of him, with his viscera all around me, stomach and diaphragm in front, bladder behind—I *was* inside of him."

"Yes, it looked that way to you," nodded Bookstrom. "That is the way your brain, accustomed to three-dimensional space, interpreted it. But look. If I draw a circle on this sheet of paper, I can see all points on the inside of it, can I not? Yet, if you were a two-dimensional being, I would have a hard time convincing you that I am not inside the circle."

THE END

A New Scientifiction Story

The Vanguard of Venus

by Landell Bartlett

This story will not be published in any magazine but we have arranged to give it to our readers in attractive book form—ABSOLUTELY FREE. Turn to page 849 and learn all about this big Free offer. Remember! This is the only way that you will ever be able to read this remarkable tale.

FLIGHT TO VENUS

By Edwin K. Sloat

I

WITH the subject of interplanetary navigation now occupying so much of the world's attention, and the daring and tragic experiences of Darnell, O'Shannon, Peabody and others still alive in the public mind, I feel that the time is ripe to reveal the true story of the most famous of all space adventurers, Prof. Randall Morteshang, and his sensational trip to Venus.

There is no need for me to go into detail about Prof. Morteshang, since he is the most discussed individual who has thrilled this jaded world in the last half century, but I feel that perhaps my version would be incomplete without roughly outlining the familiar facts.

Prof. Mortehang, it will be remembered, made his attempt to navigate space in a rocket, somewhat similar to the one in which his fellow scientist, O'Shannon, last year attempted a trip to Mars and lost his life eightly miles above the earth when the rocket exploded, due, presumably, to the rapidly dwindling air pressure outside which was needed to equalize somewhat the terrific expansion of exploding gases in the firing chamber which furnished the machine with its motive power. O'Shannon's rocket was unquestionably of poor construction, and did not cost a fraction of the money Morteshang invested in his machine.

It is not necessary for me to go into Prof. Morteshang's life before he sprang into worldwide fame almost overnight on his return from the planet, Venus, an announcement which led to the hottest controversy the scientific world has experienced in more than a century and in the end resulted in his being completely discredited by the public and condemned as the perpetrator of the greatest hoax of the age. Still, for the sake of those who may have forgotten, it may be well to state that Prof. Morteshang was an instructor in the University of Chicago before his great adventure, and was known by the faculty there as a splendid teacher who possessed a very keen mind and some startling theories about interplanetary space which were founded on an amazing knowledge of astronomy. His book on the subject of cosmic rays is still regarded as the most conclusive work of its kind in existence. He was about thirty years old, unmarried, without relatives, but with some money left to him through the death of an uncle who had raised him from boyhood.

ONCE more, we have the interplanetarian story, plus. It is a most unusual story, and the author has treated the subject with care and originality—and what will be of still greater interest to our readers is the fact that there is a story within the story. Its name is "Into Darkest Space," and the author has shown his willingness to write this sequel in the near future, in which we hope to be able to bring you first hand knowledge from Venus and its strange inhabitants.

The earliest experiments in space navigation failed to interest him, but when Peabody made his ill-fated attempt to circumnavigate the moon in his radion globe with the intention of taking moving pictures of the dead wastes of our largest satellite and bringing them back to earth, Prof. Morteshang became intensely interested in the subject.

Every child now knows what happened to Peabody. His radion globe easily climbed out of the gravitation of the earth and under the anxious eyes trained on him through every available telescope in the northern hemisphere sailed bravely out through empty space toward the full moon. Peabody's last radio message, sent from 2,000 miles out in space, stated that everything was working perfectly. No one knows just what took place, but the globe lost headway near the moon, came under the influence of its gravitation, and to this day revolves as a satellite round our lunar neighbor.

For more than a year Prof. Morteshang watched, through the powerful university telescopes, the Peabody globe coursing its unhurried path about the moon; read the endless discussions of the unfortunate adventurer's plight, watched the continual plans for rescue that always fell through, and finally decided on a great undertaking for himself.

I WAS connected with the World Television, Inc., in Chicago at that time as a portable-set reporter. My usual assignments were features and human interest pictures, so it was in the natural course of events that the chief should call me into his office one evening with information that we had received a tip that a new space navigation attempt was to be made.

"It doesn't seem to be anything very thrilling," he remarked offering me a cigaret. "I'm hoping you can develop something real out of it. The fellow is named Morteshang and he's connected with the University of Chicago. Says he'll give us the details if we care for them and will go on the screen for a public statement. I wish you would go down to the ovservatory and see what you can find out."

Five minutes later, with my portable television broadcasting set, I was aboard a Jackson Park subway express on the lower level roaring down to the South Side full of hope that I had struck the lead to the first big news-break in more than a week. Morteshang himself opened the door at my ring and invited me in. I found him to be a well built young man with a

A trickle of yellow flame suddenly spilled out of the bottom of the steel cylinder high above us. It flared and leaped downward to the earth with a roar like Niagara, churning up the sandy soil into spray and lighting up fiercely the thousands of ghastly upturned faces.

firm chin, a vigorous handshake and a gleam in his eyes that hinted at anything but the traditional retiring disposition of college professors.

"Glad to know you, Mr. Shepherd," he greeted me with a winning smile when I introduced myself. "I was rather afraid my little plan would be too commonplace for television in view of the number of space navigation attempts that have been made and ended so unfortunately."

I assured him that nothing short of a war, an earthquake, or flood disaster could prove any more interesting to the public just now. His eyes flashed with momentary enthusiasm which was immediately suppressed, and he smiled again.

"Well, to get to the point, I am planning a trip to Venus in a rocket of my own design," he began. "Needless to say, I am sure the venture will be a success."

He then talked at length on the advantages of rockets over radion globes, ray tripods, the Sickel's discharge and other actual and theoretical methods of space propulsion.

"In the case of the radion globe, such as Peabody used, the generating machinery is too complicated, the steerage too clumsy, and the propelling power too feeble," he declared. "Why, Peabody was nearly a month getting as far as he did. No, the radion globe has not the direct thrust of the rocket, nor its steering possibilities."

I made voluminous tape phonographic records while he talked, photographed his blue prints, absorbing as much information as possible myself, and arranged to put him on the theatre screens of the world next morning.

"If you have read my book on cosmic currents and their effects—which I presume you have not, although they are written for the popular mind—you will realize that one of my biggest obstacles in reaching Venus will be in holding my course through the cosmic stream, which I have named the Great Current, sweeping about the Solar System between the earth and Venus in a very well defined route," he remarked. "It is perhaps five million miles in width and fully that many miles deep, according to the evidences of my year's survey through telescopic photography of the drift of meteorites. In the case of the radion globe the radio discharge which propels it is quite feeble and the globe would undoubtedly be swept out of its course and taken along with this current—if the electrical properties of the current did not altogether neutralize the radio waves. Something of this sort may have happened to Peabody as he neared the moon. With the rocket, however, I have a primitive combustion force that will be unaffected by the electrical properties of the current and will hurl me at top speed through the current while the rudder of the rocket acting in the fire stream will give me sharp and distinct steerage."

I hurried back to the office jubilantly. Strangely enough Prof. Morteshang had notified none of the other television services, giving us a clean scoop. I made the most of it, and the theaters of the world and the television service sets in millions of homes next morning showed scene after scene of Prof. Morteshang's plan and his own account of his proposed journey. Within the hour he sprang from an obscure university professor to a famous, daring scientist and astronomer. The jaded world had found a new hero to worship.

The World Television, Inc., complimented me on my masterly treatment of the affair, and assigned me to cover it to the end. In the weeks that followed I made trips to Gary with Prof. Morteshang where the great, cigar shaped cylinder, which was to form the casing of the rocket, was being welded from the toughest Voicen steel, the revolutionary process which creates steel capable of stretching like rubber rather than breaking, while still retaining its ordinary resistance and tenacity to the fullest degree. I broadcast information about the novel sun compass, gravitational drift gauge, speed calculator, gravitational meteorite warning indicator, chemical fuel tanks, oxygen tanks and air machine, the living quarters, the electric lighting system, the radio set, the binocular periscopes looking both fore and aft in the central control room, and all the rest of the details that the public craved. Other vision broadcasters, movie men and news writers by the score hung on the story, too, but none of them was given the information and excellent treatment that I received.

II

SIX weeks after the first announcement of the attempt, so rapidly did things move, I accompanied Prof. Morteshang south to Miami, Florida, near the millionaire colony, where the start was to be made.

"It is better here than at Chicago, or New York," he stated. Miami is much farther south and consequently much nearer the Equator where gravity is somewhat lessened by the centrifugal force set up by the rotation of the earth. To gain the utmost advantage, the start should be made from a mountain top in Ecuador, but I am patriotic enough to want it to be from the soil of the United States, so I have decided on Miami."

Thousands of people gathered daily about the roped-off space in which the rocket stood, watching the steeple jacks crawling about like flies on the huge cylinder two hundred feet above the ground. A coat of paint was being given the big projectile to reflect the light of the sun out in space and make the rocket's progress easier to follw by the astronomers on earth, whose thousands of telescopes would be trained on the sky for the momentous occasion.

The cylinder, which formed the body of the rocket, stood on three titanic steel legs two hundred feet high, which in turn rested on a great circular steel ring upon the ground, making the best surface possible for the terrain in alighting. Halfway between the ground and the cylinder were steel braces which held two slender steel rudders set at right angles to each other and receiving their leverage to change the direction of the rocket by the firestream shooting downward from

the fire chamber which was located in the cylinder.

The cost of the machine was far larger than Prof. Morteshang had orignally planned. He had hoped to build it for $25,000, but as it stood ready for flight, it represented an investment of more than half a million dollars. This, fortunately, did not represent the whole or any part of his original, small fortune; the increased sale of his books, his magazine articles, news rights, and the liberal support of the Miami Chamber of Commerce financed the whole thing.

THE day of departure was finally set with plenty of time to allow the public to arrange for the event. Immediately tourists from all over the world began to flock to Florida to be present. Air lines from England, France, and, in fact, nearly every country in the world sent fleets of excursion planes to Miami; steamship lines brought in their thousands; railroads contributed their throngs; private planes from North and South America filled all the available flying fields near the city—not to mention the thosands of automobiles that jammed the roads leading toward the famous winter resort. Officials reported it to be the biggest single invasion Florida hda enjoyed since the historic land boom far back in 1920 or thereabouts, when the beauties of the state were just coming into prominence.

For more than a mile around the rocket space was fenced off and reserved for the crowd which paid two dollars a head to get that near the awesome steel ship. Forty-eight hours before the take-off the spectators began to arrive and enter the parking space bringing their beds and meals with them. Special guards were posted about the rocket in its inner roped-off circle to protect it from souvenir hunters and possible damage. Warnings were issued by the state police that planes must stay out of the air until the rocket left the ground, to prevent possible accidents.

Several hours before the take-off I went down to the rocket for a final inspection of the machine, which was to leave the earth at 8:30 p.m. Prof. Morteshang was supervising the storage of box after box of chemicals in the strong room above the firing chamber, loads that were brought up from the ground on the freight elevator and handled by sweating negro laborers.

"Enough there to drive me for a year, if necessary," he remarked, waving his hand toward the growing pile, and then smiled at me quizzically. "By the way, Shepherd, what are you doing this evening?"

"Nothing except cover this affair," I replied.

"I would like to have you come over to my apartment at the hotel for dinner—a strictly informal, and, if I might say it, a secret affair. Will you come?"

"With bells on, and tickled to death at the chance," I responded promptly.

Six o'clock found me knocking at his door and wondering what significance, if any, the affair might have in the flight. Prof. Morteshang admitted me, grinned in the best of humor, and phoned down to the dining room for a most elaborate meal, which in due time arrived and was served by a scar-faced waiter, in the balcony overlooking the ocean. We ate leisurely and settled back to enjoy our cigarets and a bottle of the oldest champagne obtainable. Not until then did Prof. Morteshang drop his bantering air, which he had maintained throughout the dinner, and become serious.

"I have been thinking about you, Shepherd," he remarked. "You have really impressed me by the way you have handled this thing since the beginning, and I have been wondering if you could manage an even larger proposition along the same lines. The subject is one that I feel extreme delicacy about proposing, and I feel bound to put you upon your honor as a gentleman to let what is said between use here go no farther. But I really need a partner—someone I can trust."

I hesitated and cleared my throat diffidently.

"The secrecy part is all O. K. and you may feel assured that I will not talk. But if you are going to offer me the opportunity of going along with you to Venus, that is something I should have to consider very carefully. You see, I have my mother to support, and I am sending my kid sister through college. Believe me, though, I would like to go with you!"

"Oh, that's all out. I'm not even going myself," he announced calmly.

"You—you not going!" I ejaculated.

"Sh! Not so loud," he cautioned. "No, I have no intentions of leaving the earth if I can help it."

"But the rocket—the crowds—" I floundered.

"That part will be taken care of, but don't forget your promise of secrecy. Let me explain the whole thing, and perhaps you will understand better. I never intended to go when I made my plans. In fact, I don't intend to get more than a few miles off the earth's surface. The rocket can go to Venus, or any place else it chooses, but it shall go alone."

I stared at him, half believing he had gone suddenly mad.

"But the public will make you pay for your fun," I protested at last.

"You mean the public will pay me for its fun," he corrected with a smile, laying his hand on my knee. "Let me call you by your nickname, 'Les,' and you call me 'Ran,' and let's get real informal and confidential about this Venus stunt, and talk it over as a couple of friends. If I seem a trifle cocksure about the whole affair, please forgive me, for it is the first big thing I have ever attempted.

"NOW to begin at the beginning. I got this whole idea from watching that hellish, globular tomb of poor Peabody floating round and round the moon. I knew him slightly—a pleasant chap who was in my astronomy class at the U. in my soph year. I mulled over his experience a great deal, and finally arrived at some conclusions. Peabody tried to go to the moon because the public wanted someone to. He sacrificed his life, his savings, and left a young widow to mourn his loss, trying to achieve that empty bubble, fame, and riches, doubtful rewards that he thought would be his on returning from his lunar adventure. Proof of his discovery to put on the auction block for the public would have been several

thousand feet of moving picture film of the lunar mountains and desert wastes which could have been faked far more realistically in any studio, and I doubt very much whether they would have equalled the telephoto studies we have made of that body through our telescopes.

"It is more than lkiely that the public would have raised the cry of 'Fake!' before he had done very much toward collecting his fortune—you know there are a considerable number of persons even now who believe that he never left the earth—and he might have lost out altogether after all. His attempt was practically suicide from the start, as all such adventures are bound to be, and utterly futile. The public is to blame.

"So, after arriving at this conclusion I decided I could make a neat little fortune, give the public a big thrill with practically no danger to myself, and then thrill it again by disillusionment, and collect for that.

"I planned to build a big rocket, start in it off the ground, drop out in a parachute before I got too high, and on reaching the ground, go into hiding for a year —make a trip to South America and visit the Upper Amazon, a thing I have always longed to do. At the end of that time I could leave behind me, half buried in the mud of some primitive swamp, a duplicate rocket and return to tthe world with the announcement that I had come back from Venus. After the first excitement, I would turn the medals and awards back to the various societies and nations that presented them to me and then come out with a book disclosing the truth, showing the ease with which the public may be duped, and the utter futility of any sane attempt at interplanetary navigation. I ought to make a million, and the public ought to learn a lesson."

He paused. I stared at the ceiling, deep in thought.

"Where do I come in?" I asked finally.

"You are to help me write the book and handle the publicity, a thing you can do much better than I. At least half the success of the venture so far has been due to you. I'll either pay you a salary—a big one—or give you a third of the royalties. All you have to do is to keep mum until you hear from me and then consider yourself hired."

"Sounds more than fair to me," I declared. "I'll accept—on the royalty basis. But I'll tell you frankly that I have my doubts. The public, I have learned, is a very, very funny animal. It may fool both of us badly before we are done with this affair. However, I'll stick with you just the same."

We shook hands on the deal and drank a final glass of champagne to its success, and left the hotel for the rocket enclosure. I was somewhat startled to see the big missile canting badly to the northwest as we made our way through the milling crowd, and called Ran's—he was no longer "Professor Morteshang" to me—attention to it.

"That's to give me a better opportunity of getting out in my 'chute," he whispered. "Tell 'em that I needed the advantage of remaining in the atmosphere as long as possible to get its added resistance to the combustion thrust. It is a legitimate reason, too."

THE crowd broke into a mighty cheer as Ran was recognized entering the gate of the fenced off space about the rocket. Flashlights thundered, movie men cranked frantically and the television reporters danced around to get the best focus possible with their sets as he mounted the freight elevator, taking me with him, and ascended to the door of the cylinder.

As we entered the control room I stared about curiously.

"Is all this paraphernalia and machinery a fake like the rest of the idea?" I asked.

"Not a bit of it," was his prompt response. "This whole rocket and everything connected with it—excepting myself—is genuine and of the best materials. I didn't dare to fake this thing for fear the scientists might become suspicious. And I also got a lot of satisfaction out of making the machine as perfect as possible. As it stands a man with the inclination and any kind of luck could actually go to Venus in it.

"Well, it is nearly time to start, so I'll put on my 'chute and get my flashlight ready. Luck to you, Les, and take good care of yourself till you hear from me."

I grinned as we shook hands.

"Have a good time in South America, Ran," I said. "You'll probably bring back an Amazon for a wife and call her a Venus—which may be proof of something or other."

His laughter followed me out of the little doorway and I entered the elevator. I heard the steel door click shut behind me and saw his smiling face through the heavy glass.

The elevator descended with a rush. No sooner had it touched the ground than the workmen hurried me to safety outside the 200-yard limit in which the rocket stood grim, and awe-inspiring but beautiful under the battery of searchlights playing on it. All about the circle were thousands of silent spectators crushed together in a black mass with their upturned faces gleaming. I glanced overhead at the brilliantly jewelled dome of the heavens waiting to receive the rocket. A great crash startled me, although I knew what it was—the collapse of the 200-foot elevator which had been toppled over out of the way of the rocket's base. The crowd swayed with excitement. The luminous dial of my wrist watch showed 8:30 o'clock.

A trickle of yellow flame suddenly spilled out of the bottom of the steel cylinder high above us. It flared and leaped downward to the earth with a roar like Niagara, churning up the sandy soil into spray and lighting up fiercely the thousands of ghastly upturned faces. The crowd shrank back. The roaring crescendoed into the giant diapason of a hurricane; the flame seemed suddenly longer. I became aware that the rocket was already high above the earth and hurtling off into the northwest. Smaller and smaller shrank the tail of fire until it became only a huge yellow star that slowly dwindled to nothing. I plunged through the swirling, cheering thousands to the television broadcasting shack with its glowing tubes, whirring machinery and bawling announcers.

Astronomers in both European and American observatories picked up the silvery oval of the rocket as

it came into sunlight beyond the shadow of the earth and followed it far into space. It disappeared in less than half an hour after its departure.

A faint flash of yellow fire was seen some time later which astronomers believed came from the rocket —"Prof. Morteshang at this point evidently decided to increase his speed," Hyman, the Glober Television and Broadcasting Service reporter, declared.

I laughed as I listened, and wondered if that brilliant surmise was not amusing Ran in his hiding place in northwest Florida or Georgia where his parachute descent must have carried him. Hyman had suffered badly throughout the affair. How he would have exulted if he had known the truth, and how he would have aired the facts before the world!

III

WEEKS grew into months before the public interest in the event died down to normal. I went about my work as usual, carrying a new earth induction wrist watch of forty-odd jewels which cost the directors of the World Television, Inc., five hundred dollars, and was given me as an expression of their esteem for the splendid way I had handled the Morteshang affair. I must confess that my conscience was not altogether at ease over the gift. Incidently, I was assigned to cover the return wherever it might occur. I enjoyed another private chuckle over that angle of the affair, too.

Winter changed to Spring and Spring matured into Summer, but no word came from Ran. Hints that he might have been destroyed by a meteorite, or have perished from the extreme cold out in the black void of space—or perhaps had become a satellite as Peabody had—begun to be heard. I was becoming a trifle uneasy and was scanning every news dispatch from South America. Then one day I received my message. It came in a badly worn envelope, which bore the post mark of Nome, Alaska, and was in Ran's handwriting.

"Come at once. Need you badly—Ran." it read.

A glance at the aerial time tables showed me that the tourist plane service to Alaska had been discontinued two weeks before. I could catch a De Luxe night passenger plane for Seattle and board a steamer there for the north the next morning, but decided against it. The message said "Come at once." That meant faster time than a coasting vessel, or the slower rail connections could make. I caught up my overcoat and dashed for the elevator, dropping down to the subway station sixty floors below and shot out to my apartment in Evanston where I packed my bag and came hurtling back through the lower level tube at a mile a minute to the Field Museum station. A Pick-Me-Up Taxi hurried me out to the mail plane hangars on Soldiers' Field, where I managed to board a big mail monoplane through the use of my reporter's card, and arrived at Nome next morning.

The northland was already a snow-covered, desolate waste. I shivered in spite of the tropic warmth of the big tourist hotel as I entered the lobby. Almost immediately a stocky, fur-clad man approached and introduced himself as Dennis McCargell and my guide to lead me to Ran. He bore a letter which identified him. We waited only long enough to purchase fur clothing for me and started on our way by dog sled.

I will not dwell on the chilly, painful details of our trip, excepting one incident which caused a great deal of inconvenience later. While we slept one night, the huskies, urged on by their wolfish hunger, tore open my pack and destroyed my portable television broadcasting set for the sake of its leather casing. There was nothing I could do except to pick up the pieces next morning.

About a week after leaving Nome, we reached a valley between high, snow-draped mountains within the Arctic Circle, a valley wherein lay an exact duplicate of the Morteshang rocket under the shoulder of a hill. The machine was tipped grotesquely on its side as though it had been smashed by the impact of falling from the skies. The twisted, broken landing gear was most realistic. Quarter of a mile distant stood a large miner's cabin with a smoking chimney. We paused on the edge of the valley.

"What a God-forsaken spot this is!" I exclaimed involuntarily. "I wonder why he didn't stick to South America."

I checked myself and could have bitten my tongue off, as I suddenly recollected my stocky, dour, Scotch guide beside me. He apparently took no notice of my words, so I let them pass. We plowed our way down the hillside, and crossed the valley to the cabin. McCargell pushed open the door and we entered.

I glanced about curiously. A red hot stove stood at one end of the big room—I was surprised at the size of the building—and beside it stood a slender girl and a young man, fur-clad like ourselves. He eyed us rather haughtily, it seemed to me. A bed stood against the wall near the window close by. McCargell led me to it.

"There he is, poor lad," he said.

UNDER the covers lay Ran with wasted cheeks and eyes that were bright with fever. The girl pushed her way imperiously between McCargell and me to see what we were doing. I glanced down at her profile and received a distinct shock. Where the average human being glows with a pinkish color from the tint of the blood beneath the skin, her flesh showed a delicate green tint, a pale, lovely hue that was utterly entrancing. I marvelled. Her hair was long and black and shot through here and there with a dark, greenish strand. She glanced up at me defiantly with great luminous eyes, that glowed with an amber flame in their depths. I noted, too, that her features were flawlessly beautiful, but her gaze made me feel uncomfortable. I hurriedly turned my attention to Ran.

He was delirious from pneumonia and mumbled strange words and phrases as he tossed about, until the girl laid a cooling hand on his forehead. He became quiet at once and fell into a fitful slumber. I looked up at her. Leave him to me, her eyes said as distinctly as though she had spoken the words. I obediently turned to the stove and removed part of my outside fur clothing.

"Tell me what happened," I asked McCargell.

"Nothing much to tell," he replied stolidly, getting out his pipe. "This is my cabin, and I was out prospectin' and trappin' on the other side of the range for a couple of weeks. When I came back I saw that big machine, whatever it is, against the hill over there where it had been wrecked, and these folk were all in here with the fire going. The young lad and lassie can't talk English. There is an old woman, too, green like they are, that's asleep in the next room where she an' the lassie stay. The old one don't get out of bed at all on account of the cold.

"Him under the covers there had been out mining coal for the stove from the outcrop on the hillside. That's where he caught his cold. He didn't think it would be so bad at first. Then he sent me down to Nome with the letter for you."

"How did he get the machine here?" I asked.

"How do I know? I wasn't here," he countered. "Must of fell out of the sky. Some kind of a new doodad for flying over the Pole, I guess."

I sat down perplexed. The girl rose and came to me. She produced a small, red leather bound volume from the bosom of her parka (Eskimo skin garment), handed it to me, and returned to the bed. I opened the book haphazardly and glanced at a page near the beginning.

"Am nearing Venus on the sunny side," I read. "The glare from the fog mantle that covers the planet is terrific. I had to smoke a portion of the window, and the periscopes through which I am watching. I have opened the firing chamber and with the rudders have turned the rocket over so that I can ease it down to the surface of the planet right side up with the pressure of the discharge to act as a brake and a landing cushion. I only hope I am not coming down over on ocean."

Great stuff! Nothing could be better for our book than a nice, juicy diary, or log of the trip. Ran evidently was leaving nothing undone to make our venture a success. I turned over a few pages.

"I entered Cherwa, the capital city, this morning, triumphantly escorted by a guard of honor of these beautiful green people. I wish I could describe adequately the fairy-like beauty of the town with its stately, ornamented walls of marble and its wide, welcoming gates. Slender, towered buildings that remind me of Oriental minarets rise proudly behind the walls, and tall, fronded trees like long-handled, feathered fans, grace the wide marble avenues. How I wish that Les could be with me to enjoy it all!"

I frowned. That last sentence was out of place and would have to be deleted.

"How he and I would laugh over that wild scheme of mine that we discussed back there in Miami the night of my departure, a scheme which, if carried out, would have robbed me of this wonderful adventure."

I gasped as the truth dawned upon me, and turned frantically to the first page of the diary.

"The joke is on me, but I do not greatly mind it. In fact, I am rather glad that things have turned out as they did. The earth, like a great, black ball with a crescent, silver rim, is lying behind me and I am hurtling through an empty void with the great, red sun and its flaring rays shooting hundreds of thousands of miles into space off to my left, and above, below, and all about are balls of fire of varied colors that are worlds and suns in themselves, the distant ones showing only as fiery points of light against the black velvet curtain of eternal space. It is all rather awe-inspiring, but nothing that frightens me. I only regret that I cannot do its description more justice.

"All this great adventure is occurring because I dropped the key to the door of the rocket at the critical instant after my take-off at Miami. As I hurriedly thrust it at the keyhole, the key slipped from my fingers and fell to the floor, where it slid under a pile of chemical boxes that had not been stored away. By the time I upset the pile and retrieved it, my opportunity to leave the rocket had passed. I was already hundreds of miles off the earth and my speed was increasing every instant. To dive out into the frigid, empty void would have been certain suicide. I could either turn the rocket about and go back to earth again, or continue on my proposed trip to Venus. I chose the latter.

"After making my decision, I released another charge into the firing chamber and felt, by the pressure of my feet on the floor, a burst of renewed speed. The flame leaped backwards for hundreds of miles. I have calculated my speed from the position of the sun, Mars and the earth and find that I am travelling in excess of a million miles an hour. I shall increase this shortly. Speed out here is only a relative matter after all, and a million miles an hour seems no swifter than ten or twelve knots aboard an ocean freighter, or two hundred in an airplane. I experienced some difficulty in getting around through the interior of the rocket because there is no gravity to hold me down, but otherwise there is no discomfort. The machinery is functioning perfectly."

I CLOSED the volume and stared about me in amazement. He had really done it! These green folk were truly children of another planet! What a book—a true book—we should write and how we would thrill the world! I turned eagerly back to the diary.

There is neither the space nor the time here to record in full what I read there. I would not weary my readers if I could, for the volume is included almost complete in Ran's autobiography, *"Into Darkest Space,"* which has gone through more than a hundred editions and has been translated into every language on earth. It is all too familiar. If any of its chapters have been forgotten, the book my be had at the nearest public library, where, I grieve to say, it has probably been placed among the works of fiction.

McCargell, stamping in from the outside, interrupted me before I had finished reading the diary.

"Snowin'," he announced laconically. "We're stuck for the winter."

I sprang to my feet.

"But I've got to get back to Nome!" I exclaimed.

"No use tryin'. By morning we'll be lucky to see out of the windows."

I raved, but in vain, for he was right and in the face

of the elements we were as helpless in our super-civilized world as the most primitive savage snow-bound in his mountain cave till spring, because we had no means of getting back to civilization to send a plane after us and bring a doctor for Ran. The radio set of the rocket had been hopelessly shattered when the big machine crashed on the mountainside as Ran was trying to bring it down through a heavy storm to get his bearings, and my portable television set had been too badly broken up by McCargell's huskies to be repaired. So I resigned myself to our fate and started to work at once on the book of the great adventure, while Loama, the green girl with the emerald blood of Venus princes in her veins, nursed Ran back to health.

Hers was the harder task at first when he hovered on the Border Line and we all waited anxiously until the crisis had passed and he had fallen into a restful slumber from which he emerged weak but released from the delirium. Loama, exhausted by her long vigil, slept in her chair at the bedside, holding his hand.

"Hello, Les," he greeted me faintly with a smile when he recognized me. "Knew you would come when you received my letter. I see you know the truth about my trip. Must have read the diary. We have our chance now at something real instead of a paltry hoax."

"I should say so," I agreed heartily. "You have made history, Old Man, but we'll talk more about it after you have rested."

His recovery was rapid, and he could scarcely wait until we had finished the first draft of the book.

"It means far more than you realize, Les," he declared. "The races of Venus have long since perfected space navigation, and bring in rare woods, metals, and chemicals from the planet Mercury, which is so hot that human life cannot exist there for any length of time. They will be coming to earth next, seeking colonization."

"Why haven't they come before?" I asked.

"We have been protected by the great cosmic current I told you about. The green people use an electrical force similar to an electric discharge for their space propulsion. The peculiar electrical properties of the Great Current nullify the effects of the discharge and the ships are swept away helplessly to fall ultimately, I presume, into the sun. No less than a hundred adventurers have set forth bravely to reach the earth in the last score of years and have never been heard of since. The scientists of Venus were at a loss to know what happened to them until I explained the current which had no effect on the primitive combustion force of my rocket."

These and many other facts that are included in *"Into Darkest Space"* I learned from Ran first hand as he lay in his bed under the watchful eyes of the green princess, who often imperiously gestured to me to stop talking and let him rest when he seemed a bit weary. I could never learn more than a few words of her language, and those, I must confess, sounded all alike, for it required the most delicate shading of tone to convey their meaning. In his book Ran says the vocabulary of the whole language is limited to only a few score of spoken words as a base for the pyramid of the most highly developed communication in the universe, which is carried on by direct inference through the eyes—a sort of mental telepathy. The system of writing is extremely complicated and bears no relation whatever to the spoken words although it is as capable of bearing the burden of cultured literature and deep philosophic discussion as any of the languages of the earth. Ran learned the spoken language through hypnotic treatment over a period of many weeks, and had mastered the rudiments of the written language during his sojourn on Venus.

LOAMA and her brother, Vomi, and their old slave governess disdained to learn English as something too primitive and harsh. I noticed that none of them experienced the slightest difficulty in making their wants known through their expressive glances.

These two children of Venus looked upon McCargell and myself at first in about the same light as they regard their slaves at home, but they revered Ran as a veritable demi-god, proving it not only by accompanying him back to earth, but also, as those familiar with his book will recall, by rescuing him from the Unknown Society, that radical organization of Venus scientists, which held him prisoner and determined that he should never leave that planet until they searched and examined the innermost depths of his mnid by hypnosis, as a biologist might dissect a living frog. Provided the experience had not resulted in his death, Ran would have survived it only to be a babbling idiot for the remainder of his life.

Knowing the resourcefulness of Loama and the utter fearlessness of her brother, I do not marvel at the way they immediately armed themselves with atomic ray machines as soon as they learned of Ran's predicament and cut their way into the steel vault in the basement of the Cherwa Academy, where he lay helpless in hypnotic stupor on the raised marble slab ready for the first experiments of the Unknown Society in the lecture room above. I can easily vision the blackness of the night, the cold, drenching rain that begins at dusk and continues intermittently for two hours from the overhanging cloud canopy of the planet, and there under the base of the academy wall, wet to the skin and with teeth chattering, Loama and her brother at work dissolving with their pistol-like ray controls the marble and steel between themselves and the secret vault while the members of the Unknown Society were gathering in the lecture hall. How they must have hurried to seize his unconscious form between them and flee out into the street just as the lights flashed on and the floor above the chamber began to open! I can appreciate, too, Loama's determination to keep Ran hidden in her own bed chamber during the ensuing excitement, while court detectives under the orders of her father, the king, ferreted out the names of the Unknown Society and put every member to death. There was no other place she could be sure of his safety.

Often I watched Loama's lambent eyes blaze and leap in the firelight shining from the open door of the red hot stove as she dwelt among the memories of her homeland on that other planet, where the sky is

always white and hazy under the eternal cloud canopy and summer rules the land. The long Arctic night here on earth, with the Aurora Borealis flaming outside in the intense stillness of the deep cold, was surely contrast enough to make her homesick. All three must have suffered severely from the cold, although they continuously wore the fur clothing supplied by McCargell.

IV

OUR imprisonment came to an end when the sun peeped again over the southern horizon, and the snow on the mountain-sides started seaward down the foaming, churning gullies and creeks. We packed our stuff as soon as possible and began our long trek back to Nome by dog sled. Ran left the faithful old rocket with deep regret. It had not been seriously damaged by the crash in landing, or by the winter's cold. He said it could well be used again. Loama hung on his words wistfully.

I could scarcely wait to reach Nome and announce to the world the safe return of Prof. Morteshang. Immediately on reaching the little city, I sought out the World Television, Inc., station there and introduced Prof. Morteshang and his three companions from Venus to the millions of people throughout the world, who at that moment were watching television screens in theatres and homes. Then I sought out the mail station and made arrangements to start for Chicago on the next mail plane.

Before we had been under way an hour, the radio operator began to receive messages of congratulation, offers of theatrical contracts, requests of autographed books and photos, and invitations to attend public and private functions from all parts of the delighted and astonished world. At the Canadian border we were met by an escadrille of municipal planes from Chicago to escort us the rest of the way to Soldiers' Field. Our escort grew rapidly from then on, as private planes hove into view from all points on the horizon to swell our triumphant progress.

Soldiers' Field was crowded to capacity by cheering thousands, who even swarmed over the plane runways, leaving us scarcely room enough to alight. When we opened the door of the cabin and stepped out we were greeted by the blaring of bands and cheering of the crowd. Special police fought back the eager spectators while the official committee of welcome took charge and escorted us from the field. Throughout the world, theatres were packed to the doors with people who were devouring the television account of the affair.

Our fortune was made, and Prof. Morteshang's name as a scientist and discoverer would go down through the ages as immortal, it seemed. Millions of dollars in movie contracts were offered not only to him, but to Princess Loama and her brother as well. Ran ignored the offers; his companions laughed first in amusement, then in contempt. They care nothing for silver screen fame, nor, in fact, for anything of the earth which they regarded in about the same light as that in which a confirmed New Yorker looks on life in Patagonia.

Ran's refusal came from a sincere hope that his accomplishment might result in the betterment of the human race in the future—a view that contrasted strongly with his original plan of bilking the public out of a fortune. He laughed a little shamefacedly to me about that original scheme and resolved never to reveal it to another living soul. He would probably become wealthy as a side issue, but he resolved never to use his tremendous fame as a lever to hoist himself into a vast fortune in the world of the theatre. He expressed this view at a famous banquet, harking back into history as he did so.

"I often heard my grandfather tell of his boyhood memories of the way the world idolized Charles Lindbergh, the first aviator to fly from New York to Paris in a non-stop flight," he said. "Lindebergh, or 'Lindy,' as he was affectionately called, turned down numberless chances to commercialize his great popularity, passing them all by in the interests of national welfare. No man in a similar position could set a higher ideal before us, than the example of that intrepid aviator."

That banquet with the presentation of the Congressional Medal for the greatest accomplishment of the year and its accompanying $50,000, which was presented by the President of the United States himself, marked the high tide in the career of Prof. Marteshang. The very next morning, while listening to the radio news dispatches of the world at breakfast, I heard a statement by Prof. Hibbs, the Harvard astronomical authority, that there was something strange about the landing spot of Prof. Morteshang on his return from Venus. It was as follows:

"The mountain in northern Alaska, it will be noted, is directly under the course taken by the rocket after it took off in Florida. It will be recalled that Prof. Morteshang started his flight at a very low angle, which could easily have resulted in the rocket passing over Alaska at a height of but a few miles above the earth before darting off into empty space. The angle of flight excited quite a discussion at the time in scientific circles and there were a number of scientists who were not altogether satisfied with Morteshang's reason of added air resistance at the start of the flight. These scientists still raise the question."

I hurried to the Amidon Hotel, where Ran and his proteges were staying. He had heard the statement, too, and was considerably disturbed by it. We at once understood the motive behind the statement. It came through the news release of the Globe Television and Radio Service, and I recognized in it the hand of Hyman, who had played second fiddle to me throughout the preparations and take-off of the rocket flight. Ran contributed further.

"That man, Hibbs, once suffered considerable embarrassment from a criticism I wrote of one of his books. He has never forgiven me."

HIBBS' statement created no great stir, but within a week another attack was made by the "Globe" gang. Hyman uncovered the fact that Ran had bought a parachute shortly before his departure. This bit of news, following Hibbs' statement, created a real sen-

sation. We held a consultation and decided to ignore the implication of fraud, but by the next day such a controversy had arisen, that Ran felt that it was necessary to come forward with an explanation, that he had taken the 'chute as a possible safeguard against a crash landing either on Venus or the earth, a precaution on a par with the equipping of trans-continental passenger planes with 'chutes, and placing lifeboats on ocean liners.

This explanation did much to quiet the controversy, but we were frankly worried. Ran saw his great accomplishment threatened with destruction, and perhaps the end of his ambition to take a scientific and diplomatic mission to Venus to bring about a better understanding between the peoples of the two worlds. No doubt existed in our minds but that the Globe Service had planned a definite campaign to discredit Ran, and we waited nervously to see where the next point of attack would be. It came from an altogether new source and fairly made us gasp at the devilish ingenuity of it.

Dr. Humphreys, owner of the famous Humphrey's sanitarium for nervous disorders located at Los Angeles, came forward with a statement that the peculiar green color of the "so-called Children of Venus," who had been introduced to the public by Prof. Morteshang as proof of his visitation to the planet Venus, was not unknown on earth, although by no means common. "Valvular trouble of the heart, which so often gives infants a blue color, had been known to impart to some patients a greenish tinge, and digestive troubles often result in the same color," he declared. "However," he concluded, "three such ideal cases as the 'Children of Venus' would be rather unusual."

We could make no reply to that. Vomi would have made an answer in his princely fashion, that would have terminated all opinions of that publicity seeking physician very suddenly and painfully if we had permitted. The inference that Vomi was sickly or diseased was an insult to his royal blood, which in his homeland would have been erased on the field of honor or any other convenient spot.

The public did not become greatly excited over Dr. Humphrey's opinion, but the belief of fraud was growing. A score of speaking and banquet invitations which had been scheduled for the near future for Prof. Marteshang were postponed or cancelled by societies and municipalities in various parts of the country. Ran was forced to call off a speaking tour through the eastern states. He raved to us, but there was nothing that we could do without openly involving ourselves in the controversy, a thing I was trying desperately to avoid.

Another attack against us was made by Prof. Hibbs while speaking at a luncheon of the Academy of Science in New York. He declared the Academy had acted prematurely in presenting its medal and $10,000 award to Prof. Morteshang without investigating more thoroughly the circumstances of the affair. The golden opportunity had passed, since such an investigation should have been made as soon as possible after the landing of the rocket, but better late than never. A committee appointed by the Academy should without delay voyage by plane to northern Alaska and look thoroughly into the wreck of the rocket, and interview the miner, McCargell.

The assembled members considered the question with much gravity and appointed the committee which was to start the following week in a specially chartered plane, accompanied, of course, by the usual train of television broadcasters, moving picture men, newspaper correspondents, and others.

We were dumfounded at the action of the Academy, but felt it best to maintain our policy of watchful waiting. As publicity director, however, I made one exception and sent a statement to the World Television, Inc., that Prof. Hibb's dislike for Prof. Morteshang dated back several years to a criticism of a book, treating on Hibbs' theories regarding the planetismal theory, a criticism which was almost universally approved by the world's astronomers. I was amazed and somewhat alarmed that the statement failed to appear on the television screens. I also realized that the World Television had not assigned me to accompany the Academy expedition. Our position was indeed becoming precarious. We could only await the findings of the committee, which would shortly be announced.

THAT report startled the world and left us dazed in dismay and astonishment. We were all five seated with the usual audience in the television room of the Amidon Hotel when Chairman Corsepius of the Rocket Investigating Committee appeared on the screen and made the following statement from northern Alaska via the portable television sets accompanying the party:

"There are no remains of any rocket on this mountain or in this vicinity where Prof. Morteshang and his three green-hued companions claim to have alighted on their return from Venus. Our investigating committee has found only a few rusty steel bridge girders which have evidently been brought here by dog sled from Nome and unloaded carelessly at the base of the mountain, as we shall show you presently.

"Of McCargell there is no trace. In Nome it is reported that he appeared there shortly after Prof. Morteshang announced his return to the world. McCargell showed his friends a large roll of currency and said he was leaving at once for his native Scotland.

"We shall now show you the remains of the alleged rocket, and the McCargell cabin, which is now vacant."

Dumfounded, we stared at the change of scene, showing the old bridge girders dumped carelessly in the snow and listened to the caustic comments of the committee members about them. The scene changed abruptly to Tokyo, where, in the early morning hours, a disastrous fire was raging in the geisha girls' quarters. Under cover of the screaming girls and the clanging fire apparatus, we crept out of the room and hurried to Ran's apartment.

Within ten minutes I received a special delivery letter from the World Television, Inc., notifying me that my services were no longer required by that corporation. Another letter next morning was received from the president of the Univesity of Chicago, informing Ran that his resignation would be accepted at once. During the remainder of the week, bell boys brought

letters and telegrams from banquet and reception committees all over the country, informing us that affairs at which Prof. Morteshang was to appear had been called off.

Out of all this welter came one cheerful announcement. It was from our literary agent, informing us that the sales of *"Into Darkest Space"* were steadily mounting, and the financial returns from this and the news rights with their various ramifications had already topped two and a half millions of dollars, and in a short time would total more than five millions.

Ran read the statement wearily, dropped it on the floor, and resumed his endless pacing from one end of the room to the other with his knuckles clenched behind his back and his face disfigured by the frown he had worn for days. He was haggard from the loss of sleep and appetite. Loama, seated beside me, watched with genuine concern but without comment. Vomi maintained a sympathetic, masculine silence. Abruptly Ran halted before us.

"Why can't they quit hounding me?" he burst out. "What have I done to deserve this treatment? Have I tried to injure anyone? Have I not opened up a wonderful, new phase of human experience for mankind, and am I not trying to work for the betterment of two worlds?"

"This persecution is only the result of jealousy and hatred, of course," I assured him. "The people of the world are confused and misled. When the truth becomes known they will turn on Hyman, Hibbs and that gang even more unmercifully than they have treated you. You are being martyred—temporarily—but you will have your turn. Do not feel too badly about the affair, and, if need be, regard this episode only as a touch of poetic justice for that original foolishness you devised to fool the public."

"That is what hurts the worst!" he exclaimed. "Such a wonderful thing has resulted from my paltry little plan of getting a few dollars from the public, and now the public is refusing to believe in me!"

He started pacing the floor again. I sprang up and caught his arm.

"Stop worrying, Ran," I said. "We'll make a trip of our own to Alaska and see if we can find some trace of the rocket—it is no easy matter to hide tons of steel like that—and we'll get a detective to find McCargell and get a written statement from him containing the truth of the matter."

He shook his head dolefully.

"A statement wouldn't do any good if he did make it," he replied. "The public would be made to believe that we bought it from him."

I knew he was right, but I refused to admit it, and began to search my mind for some hot counter-attack to launch against our enemies.

WE never started the search for the missing rocket, nor did we put a detective on the trail of McCargell, for something took place that afternoon which convinced Ran that there was no possibility of restoring his reputation before the public again. Since the report of the rocket committee, we had secluded ourselves in the apartment, refusing to see any visitors. Our meals were served there, and we also installed a private television receiving outfit to prevent the unpleasant experience of using the one in the hotel and meeting the public.

We had just finished luncheon and were sitting about the room facing the television screen, while the events of the world occurred before us. Sensational testimony in a murder trial in New Orleans had halted while the court recessed, and we were about to change to a theatrical wavelength and attend a musical show in New York, when the bell announcing important news jangled loudly. The scene shifted to the warden's office in the federal penitentiary at Atlanta. A man in prison garb with a scar across his right cheek was about to speak. Something vaguely familiar about him stirred my curiosity before he was introduced.

The warden informed us that the prisoner was Alfred Smith, serving a sentence for using the mails to defraud, and had something of vital importance to say about the Morteshang affair. Before the prisoner had spoken a dozen words, both Ran and I recognized him as the waiter who had served our farewell dinner in the Miami hotel on the night of the rocket take-off. Smith said he had hidden in the room off the balcony and had overheard Ran tell me all the details of the proposed fraud, including the parachute descent, the exploration trip up the Amazon and all the rest. Smith explained his previous silence by declaring frankly that he had planned to extort enough money from us on the expiration of his sentence to live comfortably for the rest of his life.

"The ways things have turned out, the world will know all about it before I am free, and my knowledge would do me no good," he concluded. "I might as well spread the glad tidings now, while everybody is interested and get what fun I can out of it."

We waited in vain for him to tell the rest of the plan—how we planned to disillusion the public and turn back the awards, but he said nothing about it. He had been too well coached for that, I know.

Ran stared at the screen with tragic eyes. Noama put her arm about him and wept, while Vomi strode about the room white with rage, cursing fluently in his native tongue. I could only grit my teeth in anger.

Ran accepted his defeat stoically, and no amount of urging on our part to fight back could change his mind. Vomi, with the hotheaded impulse of youth, wanted to seek out Hibbs and Hyman forthwith, and force the truth about their part in the conspiracy against Ran from them. I must confess that I was with him heart and soul in that proposal and yearned for nothing better than to choke either the truth or the life out of Hyman with my bare hands. Ran would hear nothing of it; he would not even make a statement for the public.

Later in the afternoon the New York television announcer informed us that the government, universities and various scientific societies would probably file suit to force Prof. Morteshang to return the medals and awards. Nothing developed along that line, however, for that night we mailed the medals and checks for the

awards back to every society, college, city, organization and individual that presented them, including Congress.

Ran and I spent most of the night at this, while Loama, Vomi and their slave governess packed suitcases and trunks. In the early morning hours we disappeared, leaving only a vacant apartment to greet the hordes of news men, camera men, television reporters, attorneys and the rest that descended on it next morning, and gave the world another thrill by announcing our mysterious disappearance.

THE story of Prof. Morteshang and his sensational trip to Venus ended there as far as the world was concerned. He has never been seen in public since, and I am here telling for the first time what became of him and his three companions.

We left the apartment secretly and shot up on the elevator to the roof on the one hundred and fiftieth floor, where we hired a large taxi-plane and flew south to our recently purchased estate in the Ozark Mountains. It is really quite a pretentious place, although located in a sparsely inhabited country, with its palatial house and spacious grounds all enclosed by a high wall to insure secrecy. My mother and sister were there at the time—they still are.

In the meadow behind the stables stood a nearly completed steel rocket, an enlarged duplicate of the one which made the historic trip to Venus and return. The new rocket was the one in which the Morteshang scientific and diplomatic mission, Princess Loama, Prince Vomi, and their slave governess were to have journeyed to Venus. We had given out no information about its construction.

In the month that followed, while the world wondered what had become of us, the rocket was completed and filled with stores for a voyage. I watched the preparations with a heavy heart, for I knew it meant the final departure of my friends.

"I couldn't stay on earth any longer, Les," Ran declared. "I could never live down the opinion the public has of me. On Venus I will be an honored scientist and a personage high in court favor. Besides, I am in duty bound to return Loama and Vomi to their parents."

There was another reason, too. I had seen Ran and Loama on the terrace in the moonlight with her white arms about his neck and her lips against his. He would, indeed, be high in the Green Court, I thought a trifle wistfully.

"Come with us, Les," Ran pleaded, but I could only shake my head. Heaven knows, I wanted to, for I faced the same thing here on earth that he was escaping from, but my mother needed my care. Loama pleaded with me, too, her lack of words more than replaced by the eloquence of her eyes. Had things been different, she—oh, well, I couldn't have gone, anyway.

The final day came. I accompanied the little party up into the body of the rocket.

'We have parachutes this trip, too," observed Ran with a smile, indicating four bundles at our feet. "Shall we make them five instead of four?"

I shook my head. Final good-byes were said, and Loama gave me the surprise of my life by suddenly throwing her arms about my neck and kissing me farewell. It was the only kiss she ever gave me. In memory I can still feel the moist warmth of her lips. . . .

The elevator carried me down to the ground, where my mother and sister and little group of mechanics waited to demolish the elevator. We moved back a safe distance. The door in the rocket above us closed. My watch registered exactly noon. Ran wanted no telescopes to follow him out into space on this trip.

Flame suddenly roared down from the firing chamber, tearing up the sod and igniting the wood of the fallen elevator. The rocket shot upward, leaving a long trail of fire. Straight up it rose, diminishing rapidly to a black speck and then to nothing. For a long time I squinted up at the clear blue sky where it had vanished.

I sighed and glanced down at the ground. A flash of yellow metal caught my eye. It was reflected from a heavy brooch of virgin gold, lying in the grass, a brooch showing a laughing face of a girl carved in pale green ivory with tall, graceful trees like long-handled feathered fans in the background. It lies before me on my desk as I write this, like the invitation of the goddesses of Venus to an earthbound adorer. Maybe I shall know them better some day—who can say?

THE END

TORIES about ants are no longer a novelty in fiction. Scientifiction stories about ants have been written before.

But we unhesitatingly state that the present story, by the well-known writer, is no doubt the greatest ant story that has ever been conceived.

The editor of this magazine, in a talk with Mr. Verrill, who is not only an author of note, but a noted explorer as well, asked him to do a special ant story for this magazine. It is interesting to note, that practically the entire story was written in the South American jungle, during Mr. Verrill's latest expedition.

Readers will remember that Mr. Verrill discovered a new race of bearded Indians near the Peruvian wilds in South America. Outside of this, Mr. Verrill has for many years been making a deep study of ants and their habits, and the things that he tells us of them in this story are not at all exaggerated. If you magnify the usual ant, you will have exactly what Mr. Verrill gives us in this notable document.

Few people are interested enough to study a dry scientific work of ant-life, but here we are given the greatest scientifiction story of ants and the way they live. It is not only a first-class piece of literature, but is a gem from a purely scientific viewpoint also.

This story is published in the Fall edition of AMAZING STORIES QUARTERLY

Now on sale at all newsstands

The METAL MAN

By Jack Williamson

THE Metal Man stands in a dark, dusty corner of the Tyburn College Museum. Just who is responsible for the figure being moved there, or why it was done, I do not know. To the casual eye it looks to be merely an ordinary life-size statue. The visitor who gives it a closer view marvels at the minute perfection of the detail of hair and skin; at the silent tragedy in the set, determined expression and poise; and at the remarkable greenish cast of the metal of which it is composed, but, most of all, at the peculiar mark upon the chest. It is a six-sided blot, of a deep crimson hue, with the surface oddly granular and strange wavering lines radiating from it—lines of a lighter shade of red.

Of course it is generally known that the Metal Man was once Professor Thomas Kelvin of the Geology Department. There are current many garbled and inaccurate accounts of the weird disaster that befell him. I believe I am the only one to whom he entrusted his story. It is to put these fantastic tales at rest that I have decided to publish the narrative that Kelvin sent me.

For some years he had been spending his summer vacations along the Pacific coast of Mexico, prospecting for radium. It was three months since he had returned from his last expedition. Evidently he had been successful beyond his wildest dreams. He did not come to Tyburn, but we heard stories of his selling millions of dollars worth of salts of radium, and giving as much more to institutions employing radium treatment. And it was said that he was sick of a strange disorder that defied the world's best specialists, and that he was pouring out his millions in the establishment of scholarships and endowments as if he expected to die soon.

NOT since we published "The Moon Pool" has such a story as this been published by us.

"The Metal Man" contains an abundant matter of mystery, adventure, and for a short story, a surprising amount of true science.

Unless we are very much mistaken, this story will be hailed with delight by every scientifiction fan. We hope Mr. Williamson can be induced to write a number of stories in a similar vein.

One cold, stormy day, when the sea was running high on the unprotected coast which the cottage overlooks, I saw a sail out to the north. It rapidly drew nearer until I could tell that it was a small sailing schooner with auxiliary power. She was running with the wind, but a half mile offshore she came up into it and the sails were lowered. Soon a boat had put off in the direction of the shore. The sea was not so rough as to make the landing hazardous, but the proceeding was rather unusual, and, as I had nothing better to do, I went out in the yard before my modest house, which stands perhaps two hundred yards above the beach, in order to have a better view.

When the boat touched, four men sprang out and rushed it up higher on the sand. As a fifth tall man arose in the stern, the four picked up a great chest and started up in my direction. The fifth person followed leisurely. Silently, and without invitation, the men brought the chest up the beach, and into my yard, and set it down in front of the door.

The fifth man, whom I now knew to be a hard-faced Yankee skipper, walked up to me and said gruffly,

"I am Captain McAndrews."

"I'm glad to meet you, Captain," I said, wondering. "There must be some mistake. I was not expecting—"

"Not at all," he said abruptly. "The man in that chest was transferred to my ship from the liner *Plutonia* three days ago. He has paid me for my services, and I believe his instructions have been carried out. Good day, sir."

He turned on his heel and started away.

"A man in the chest!" I exclaimed.

He walked on unheeding, and the seamen followed. I stood and watched them as they walked down to the boat, and rowed back to the schooner. I gazed at its sails until they were lost against the dull blue of the clouds. Frankly, I feared to open the chest.

At last I nerved myself to do it. It was unlocked. I threw back the lid. With a shock of uncontrollable horror that left me half sick for hours, I saw in it, stark naked, with the strange crimson mark standing lividly out from the pale green of the breast, the Metal Man, just as you may see him in the Museum.

Of course, I knew at once that it was Kelvin. For a long time I bent, trembling and staring at him. Then I saw an old canteen, purple-stained, lying by the head of the figure, and under it, a sheaf of manuscript. I got the latter out, walked with shaken steps to the easy chair in the house, and read the story that follows:

"DEAR Russell,

"You are my best—my only—intimate friend. I have arranged to have my body and this story brought to you. I just drank the last of the wonderful purple liquid that has kept me alive since I came back, and I have scant time to finish this necessarily brief account of my adventure. But my affairs are in order and I die in peace. I had myself transferred to the schooner to-day, in order to reach you

The fire was as big as a balloon, bright and steady. It looked much like a great jet of combustible gas, burning as it streamed from the cylinder . . . a whole forest of flames. . . . I stood petrified in amazement, wondering vaguely at the what and why of the thing.

as soon as could be and to avoid possible complications. I trust Captain McAndrews. When I left France, I hoped to see you before the end. But Fate ruled otherwise.

"You know that the goal of my expedition was the headwaters of El Rio de la Sangre, 'The River of Blood.' It is a small stream whose strangely red waters flow into the Pacific. On my trip last year I had discovered that its waters were powerfully radioactive. Water has the power of absorbing radium emanations and emitting them in turn, and I hoped to find radium-bearing minerals in the bed of the upper river. Twenty-five miles above the mouth the river emerges from the Cordilleras. There are a few miles of rapids and back of them the river plunges down a magnificent waterfall. No exploring party had ever been back of the falls. I had hired an Indian guide and made a mule-back journey to their foot. At once I saw the futility of attempting to climb the precipitous escarpment. But the water there was even more powerfully radioactive than at the mouth. There was nothing to do but return.

"This summer I bought a small monoplane. Though it was comparatively slow in speed and able to spend only six hours aloft, its light weight and the small area needed for landing, made it the only machine suitable for use in so rough a country. The steamer left me again on the dock at the little town of Vaca Morena, with my stack of crates and gasoline tins. After a visit to the Alcade I secured the use of an abandoned shed for a hangar. I set about assembling the plane and in a fortnight I had completed the task. It was a beautiful little machine, with a wing spread of only twenty-five feet.

"Then, one morning, I started the engine and made a trial flight. It flew smoothly and in the afternoon I refilled the tanks and set off for the Rio de la Sangre. The stream looked like a red snake crawling out to the sea—there was something serpentine in its aspect. Flying high, I followed it, above the falls and into a region of towering mountain peaks. The river disappeared beneath a mountain. For a moment I thought of landing, and then it occurred to me that it flowed subterraneously for only a few miles, and would reappear farther inland.

"I soared over the cliffs and came over the crater.

"A great pool of green fire it was, fully ten miles across to the black ramparts at the farther side. The surface of the green was so smooth that at first I thought it was a lake, and then I knew that it must be a pool of heavy gas. In the glory of the evening sun the snow-capped summits about were brilliant argent crowns, dyed with crimson, tinged with purple and gold, tinted with strange and incredibly beautiful hues. Amid this wild scenery, nature had placed her greatest treasure. I knew that in the crater I would find the radium I sought.

"I CIRCLED about the place, rapt in wonder. As the sun sank lower, a light silver mist gathered on the peaks, half veiling their wonders, and flowed toward the crater. It seemed drawn with a strange attraction. And then the center of the green lake rose up in a shining peak. It flowed up into a great hill of emerald fire. Something was rising in the green—carrying it up! Then the vapor flowed back, revealing a strange object, still veiled faintly by the green and silver clouds. It was a gigantic sphere of deep red, marked with four huge oval spots of dull back. Its surface was smooth, metallic, and thickly studded with great spikes that seemed of yellow fire. It was a machine, inconceivably great in size. It spun slowly as it rose, on a vertical axis, moving with a deliberate, purposeful motion.

"It came up to my own level, paused and seemed to spin faster. And the silver mist was drawn to the yellow points, condensing, curdling, until the whole globe was a ball of lambent argent. For a moment it hung, unbelievably glorious in the light of the setting sun, and then it sank—ever faster—until it dropped like a plummet into the sea of green.

"And with its fall a sinister darkness descended upon the desolate wilderness of the peaks, and I was seized by a fear that had been deadened by amazement, and realized that I had scant time to reach Vaca Morena before complete darkness fell. Immediately I put the plane about in the direction of the town. According to my recollections, I had, at the time, no very definite idea of what it was I had seen, or whether the weird exhibition had been caused by human or natural agencies. I remember thinking that in such enormous quantities as undoubtedly the crater contained it, radium might possess qualities unnoticed in small amounts, or, again, that there might be present radioactive minerals at present unknown. It occurred to me also that perhaps some other scientists had already discovered the deposits and that what I had witnessed had been the trial of an airship in which radium was utilized as a propellent. I was considerably shaken, but not much alarmed. What happened later would have seemed incredible to me then.

"And then I noticed that a pale bluish luminosity was gathering about the cowl of the cockpit, and in a moment I saw that the whole machine, and even my own person, was covered with it. It was somewhat like St. Elmo's Fire, except that it covered all surfaces indiscriminately, instead of being restricted to sharp points. All at once I connected the phenomenon with the thing I had seen. I felt no physical discomfort, and the motor continued to run, but as the blue radiance continued to increase, I observed that my body felt heavier, and that the machine was being drawn downward! My mind was flooded with wonder and terror. I fought to retain sufficient self-possession to fly the ship. My arms were soon so heavy that I could hold them upon the controls only with difficulty, and I felt a slight dizziness, due, no doubt, to the blood's being drawn from my head. When I recovered, I was already almost upon the green. Somehow, my gravitation had been increased and I was being drawn into the pit! It was possible to keep the plane under control only by diving and keeping at a high speed.

"I plunged into the green pool. The gas was not suffocating, as I had anticipated. In fact, I noticed no

change in the atmosphere, save that my vision was limited to a few yards around. The wings of the plane were still distinctly discernible. Suddenly a smooth, sandy plain was murkily revealed below, and I was able to level the ship off enough for a safe landing. As I came to a stop I saw that the sand was slightly luminous, as the green mist seemed to be, and red. For a time I was confined to the ship by my own weight, but I noticed that the blue was slowly dissipating, and with it, its effect.

"As soon as I was able, I clambered over the side of the cockpit, carrying my canteen and automatic, which were themselves immensely heavy. I was unable to stand erect, but I crawled off over the coarse, shining, red sand, stopping at frequent intervals to lie flat and rest. I was in deathly fear of the force that had brought me down. I was sure it had been directed by intelligence. The floor was so smooth and level that I supposed it to be the bottom of an ancient lake.

"Sometimes I looked fearfully back, and when I was a hundred yards away I saw a score of lights floating through the green toward the airplane. In the luminous murk each bright point was surrounded by a disc of paler blue. I made no movement, but lay and watched them. They floated to the plane and wheeled about it with a slow, heavy motion. Closer and lower they came until they reached the ground about it. The mist was so thick as to obscure the details of the scene.

"When I went to resume my flight, I found my excess of gravity almost entirely gone, though I went on hands and knees for another hundred yards to escape possible observation. When I got to my feet, the plane was lost to view. I walked on for perhaps a quarter of a mile and suddenly realized that my sense of direction was altogether gone. I was completely lost in a strange world, inhabited by beings whose nature and disposition I could not even guess! And then I realized that it was the height of folly to walk about when any step might precipitate me into a danger of which I could know nothing. I had a peculiarly unpleasant feeling of helpless fear.

"The luminous red sand and the shining green of the air lay about in all directions, unbroken by a single solid object. There was no life, no sound, no motion. The air hung heavy and stagnant. The flat sand was like the surface of a dead and desolate sea. I felt the panic of utter isolation from humanity. The mist seemed to come closer; the strange evil in it seemed to grow more alert.

"SUDDENLY a darting light passed meteor-like through the green above and in my alarm I ran a few blundering steps. My foot struck a light object that rang like metal. The sharpness of the concussion filled me with fear, but in an instant the light was gone. I bent down to see what I had kicked.

"It was a metal bird—an eagle formed of metal—with the wings outspread, the talons gripping, the fierce beak set open. The color was white, tinged with green. It weighed no more than the living bird. At first I thought it was a cast model, and then I saw that each feather was complete and flexible. Somehow, a real eagle had been turned to metal! It seemed incredible, yet here was the concrete proof. I wondered if the radium deposits, which I had already used to explain so much, might account for this too. I knew that science held transmutation of elements to be possible—had even accomplished it in a limited way, and that radium itself was the product of the disintegration of ionium; and ionium that of uranium.

"I was struck with fright for my own safety. Might I be changed to metal? I looked to see if there were other metal things about. And I found them in abundance. Half-buried in the glowing sands were metal birds of every kind—birds that had flown over the surrounding cliffs. And, at the climax of my search, I found a pterosant—a flying reptile that had invaded the pit in ages past—changed to ageless metal. Its wingspread was fully fifteen feet—it would be a treasure in any museum.

"I made a fearful examination of myself, and to my unutterable horror, I perceived that the tips of my finger nails, and the fine hairs upon my hands, *were already changed to light green metal!* The shock unnerved me completely. You cannot conceive my horror. I screamed aloud in agony of soul, careless of the terrible foes that the sound might attract. I ran off wildly. I was blind, unreasoning. I felt no fatigue as I ran, only stark terror.

"Bright, swift-moving lights passed above in the green, but I heeded them not. Suddenly I came upon the great sphere that I had seen above. It rested motionless in a cradle of black metal. The yellow fire was gone from the spikes, but the red surface shone with a metallic luster. Lights floated about it. They made little bright spots in the green, like lanterns swinging in a fog. I turned and ran again, desperately. I took no note of direction, nor of the passage of time.

"Then I came upon a bank of violet vegetation. Waist-deep it was, grass-like, with thick narrow leaves, dotted with clusters of small pink blooms, and little purple berries. And a score of yards beyond I saw a sluggish red stream—El Rio de la Sangre. Here was cover at last. I threw myself down in the violet growth and lay sobbing with fatigue and terror. For a long time I was unable to stir or think. When I looked again at my finger nails, the tips of metal had doubled in width.

"I tried to control my agitation, and to think. Possibly the lights, whatever they were, would sleep by day. If I could find the plane, or scale the walls, I might escape the fearful action of the radioactive minerals before it was too late. I realized that I was hungry. I plucked off a few of the purple berries and tasted them. They had a salty, metallic taste, and I thought they would be valueless for food. But in pulling them I had inadvertently squeezed the juice from one upon my fingers, and when I wiped it off I saw, to my amazement and my inexpressible joy, that the rim of metal was gone from the finger nails it had touched. I had discovered a means of safety! I suppose that the plants were able to exist there only because they had been so developed that they produced compounds counteracting the metal-forming emana-

tions. Probably their evolution began when the action was far weaker than now, and only those able to withstand the more intense radiations had survived. I lost no time in eating a cluster of the berries, and then I poured the water from my canteen and filled it with their juice. I have analysed the fluid and it corresponds in some ways with the standard formulas for the neutralization of radium burns and doubtless it saved me from the terrible burns caused by the action of ordinary radium.

"I LAY there until dawn, dozing a little at times, only to start into wakefulness without cause. It seemed that some daylight filtered through the green, for at dawn it grew paler, and even the red sand appeared less luminous. After eating a few more of the berries, I ascertained the direction in which the stagnant red water was moving, and set off down-stream, toward the west. In order to get an idea of where I was going, I counted my paces. I had walked about two and a half miles, along by the violet plants, when I came to an abrupt cliff. It towered up until it was lost in the green gloom. It seemed to be mostly of black pitchblende. The barrier seemed absolutely unscalable. The red river plunged out of sight by the cliff in a racing whirlpool.

"I walked off north around the rim. I had no very definite plan, except to try to find a way out over the cliffs. If I failed in that, it would be time to hunt the plane. I had a mortal fear of going near it, or of encountering the strange lights I had seen floating about it. As I went I saw none of them. I suppose they slept when it was day.

"I went on until it must have been noon, though my watch had stopped. Occasionally I passed metal trees that had fallen from above, and once, the metallic body of a bear that had slipped off a path above, some time in past ages. And there were metal birds without number. They must have been accumulating through geological ages. All along up to this, the cliff had risen perpendicularly to the limit of my vision, but now I saw a wide ledge, with a sloping wall beyond it, dimly visible above. But the sheer wall rose a full hundred feet to the shelf, and I cursed at my inability to surmount it. For a time I stood there, devising impractical means for climbing it, driven almost to tears by my impotence. I was ravenously hungry, and thirsty as well.

"At last I went on.

"In an hour I came upon it. A slender cylinder of black metal, that towered a hundred feet into the greenish mist, and carried at the top, a great mushroom-shaped orange flame. It was a strange thing. The fire was as big as a balloon, bright and steady. It looked much like a great jet of combustible gas, burning as it streamed from the cylinder. I stood petrified in amazement, wondering vaguely at the what and why of the thing.

"And then I saw more of them back of it, dimly—scores of them—a whole forest of flames.

"I crouched back against the cliff, while I considered. Here I supposed, was the city of the lights. They were sleeping now, but still I had not the courage to enter. According to my calculations I had gone about fifteen miles. Then I must be, I thought, almost diametrically opposite the place where the crimson river flowed under the wall, with half of the rim unexplored. If I wished to continue my journey, I must go around the city, if I may call it that.

"So I left the wall. Soon it was lost to view. I tried to keep in view of the orange flames, but abruptly they were gone in the mist. I walked more to the left, but I came upon nothing but the wastes of red sand, with the green murk above. On and on I wandered. Then the sand and the air grew slowly brighter and I knew that night had fallen. The lights were soon passing to and fro. I had seen lights the night before, but they traveled high and fast. These, on the other hand, sailed low, and I felt that they were searching .

"I knew that they were hunting for me. I lay down in a little hollow in the sand. Vague, mist-veiled points of light came near and passed. And then one stopped directly overhead. It descended and the circle of radiance grew about it. I knew that it was useless to run, and I could not have done so, for my terror. Down and down it came.

"AND then I saw its form. The thing was of a glittering, blazing crystal. A great-six-sided, upright prism of red, a dozen feet in length, it was, with a six-pointed structure like a snowflake about the center, deep blue, with pointed blue flanges running from the points of the star to angles of the prism! Soft scarlet fire flowed from the points. And on each face of the prism, above and below the star, was a purple cone that must have been an eye. Strange pulsating lights flickered in the crystal. It was alive with light.

"It fell straight toward me!

"It was a terribly, utterly alien form of life. It was not human, not animal—not even life as we know it at all. And yet it had intelligence. But it was strange and foreign and devoid of feeling. It is curious to say that even then, as I lay beneath it, the thought came to me, that the thing and its fellows must have crystallized when the waters of the ancient sea dried out of the crater. Crystallizing salts take intricate forms.

"I drew my automatic and fired three times, but the bullets ricocheted harmlessly off the polished facets.

"It dropped until the gleaming lower point of the prism was not a yard above me. Then the scarlet fire reached out caressingly—flowed over my body. My weight grew less. I was lifted, held against the point. You may see its mark upon my chest. The thing floated into the air, carrying me. Soon others were drifting about. I was overcome with nausea. The scene grew black and I knew no more.

"I awoke floating free in a brilliant orange light. I touched no solid object. I writhed, kicked about—at nothingness. I could not move or turn over, because I could get a hold on nothing. My memory of the last two days seemed a nightmare. My clothing was still upon me. My canteen still hung, or rather floated, by my shoulder. And my automatic was in my pocket. I had the sensation that a great space of time had passed.

There was a curious stiffness in my side. I examined it and found a red scar. I believe those crystal things had cut into me. And I found, with a horror you cannot understand, the mark upon my chest. Presently it dawned upon me that I was floating, devoid of gravity and free as an object in space, in the orange flame at the top of one of the black cylinders. The crystals knew the secret of gravity. It was vital to them. And peering about, I discerned, with infinite repulsion, a great flashing body, a few yards away. But its inner lights were dead, so I knew that it was day, and that the strange beings were sleeping.

"IF I was ever to escape, this was the opportunity. I kicked, clawed desperately at the air, all in vain. I did not move an inch. If they had chained me, I could not have been more secure. I drew my automatic, resolved on a desperate measure. They would not find me again, alive. And as I had it in my hand, an idea came into my mind. I pointed the gun to the side, and fired six rapid shots. And the recoil of each explosion sent me drifting faster, rocket-wise, toward the edge.

"I shot out into the green. Had my gravity been suddenly restored, I might have been killed by the fall, but I descended slowly, and felt a curious lightness for several minutes. And to my surprise, when I struck the ground, the airplane was right before me! They had drawn it up by the base of the tower. It seemed to be intact. I started the engine with nervous haste, and sprang into the cockpit. As I started, another black tower loomed up abruptly before me, but I veered around it, and took off in safety.

"In a few moments I was above the green. I half expected the gravitational wave to be turned on me again, but higher and higher I rose unhindered until the accursed black walls were about me no longer. The sun blazed high in the heavens. Soon I had landed again at Vaca Morena.

"I had had enough of radium hunting. On the beach, where I landed, I sold the plane to a rancher at his own price, and told him to reserve a place for me on the next steamer, which was due in three days. Then I went to the town's single inn, ate, and went to bed. At noon the next day, when I got up, I found that my shoes and the pockets of my clothes contained a good bit of the red sand from the crater that had been collected as I crawled about in flight from the crystal lights. I saved some of it for curiosity alone, but when I analysed it I found it a radium compound so rich that the little handful was worth millions of dollars.

"But the fortune was of little value, for, despite frequent doses of the fluid from my canteen, and the best medical aid, I have suffered continually, and now that my canteen is empty, I am doomed.

Your friend, Thomas Kelvin"

Thus the manuscript ends. If the reader doubts the truth of the letter, he may see the Metal Man in the Tyburn Museum.

The End

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a textbook. Moreover, most of the stories are written in a popular vein, making it possible for any one to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge.

1. What does time do and has it an entity of its own? (See page 840.)
2. Has space any attributes of its own? (See page 841.)
3. As far as it is concerned with space, is the fourth dimension possible? (See page 841.)
4. What are the diameter of Mars and the density of the planet Venus? (See page 842.)
5. What are the highest and lowest temperatures ever observed on the earth? (See page 842.)
6. Was the peterodactyl a bird? (See page 830.)
7. What is a Parka? (See page 786.)
8. What internal trouble can change the color of the epidermis of a human being? (See page 789.)
9. What general motion of progression affects the entire Solar System? (See page 850.)
10. What are gyroscopes used for in shipping? (See page 836.)
11. What is the philological basis for the names of the inhabitants of the planets (if there are any inhabitants)? (See page 856.)
12. How much of the oxygen of the air does a human being consume in breathing? (See page 861.)

Back Numbers Wanted

The publishers need a quantity of back numbers of AMAZING STORIES for 1926 and 1927.

If you have copies of these issues, and are willing to part with them, please be good enough to communicate with us. It will be appreciated.

THE PUBLISHERS.

The WORLD at BAY

By B. and Geo. C. Wallis

What Went Before:

WHEN the first news began to dribble in from South America about curious beings, short and broad, with pasty faces, who manned strange airplanes that could rise and fall vertically and were equipped with some sort of gun which discharged a shell capable of emitting a cloud of poisonous gas, the head of the New York Scoop *sent two of his best reporters, Max Harding and Dick Martin, to the scene of the invasion.*

When they arrive at Rio—alone, because their boat turns back, frightened—they find that the strange invaders had preceded them there and left their mark.

There is nothing they could do in Rio, so they decide to get a steamer for somewhere else. When they arrive at the wharf on the Parahyba River, they find that the steamer, full to overflowing, is further deterred from departing on account of the frantic mob at the wharf. Harding and Martin, pushing through the crowd, find Miss Rita Courtney, a fellow reporter, also on the job. They all manage to board the steamer just before she pulls out, but, overloaded with her human cargo, she soon runs into a mudbank and wedges herself fast there.

Just above them, they see the invading plane, trailing a kind of coarse meshed drag-net. In this net, the enemy bags the panic stricken crowds, like fish, and brings them up to the cage which hangs loosely beneath their aerial vessel. The three newspaper people are among the last batch. The plane continues southward and then descends deep into the crust of the earth into a subterranean land—the land of the Troglodytes.

There they find many white people of the upper world, among them John Rixon, old-time friend of Rita Courtney, who has assumed leadership among the upper world people enslaved there. They learn that the Trogs are capturing more and more people for the purpose of working their radium mines, for which they require exhaustless numbers on account of the short duration of life caused by mining radium.

After a short time, due to Rita's inspiration, they learn a little of the Troggese language, and because they seem somewhat superior to the rest of the captives, they are not sent to the mines. Chemically, these Trogs were in advance of the upper world.

After a short imprisonment for Dick and Max Harding, during which time Rita and John Rixon are busy making a parachute, plans are made for the getaway of at least three of the group—Harding, because he thinks that he had about completed a short-length wave, which will cause nerve paralysis —Rita and Dick Martin. John Rixon stays behind for the sake of the prisoners.

Their opportunity for escape comes very shortly. Taking their hand-made parachute with them, the three friends hide as stowaways in a plane that is going up for more victims. After they shoot up through the crater, one of the Trogs, searching for something, catches Dick moving the parachute toward more safety and sends him back to the hole for further imprisonment—the parachute with him. But Rita, in her usual resourceful manner, with the help of Harding, makes another 'chute from as much of her clothing and Harding's as they could spare. They get their chance to escape while they are sailing over Sydney. Their conveyance is barely able to withstand the strain of the two bodies, but they land safely on the roof of a big department store. They replenish their wardrobe from what is left of the stock in the looted store, for the Trogs have been at work in Sydney, too.

In this new city of the dead, they meet Mr. Jonas T. Hopkins, who helps them on their way to America, and a laboratory, in which Harding has the means for saving the world against this terrible enemy. Their plane breaks down near the canal and they start off toward Alexandria and Port Said, where they hope to get a steamer for New York.

Part II

The Battle of Gibraltar

THE screw stopped, the steamer came to a standstill.

"I daren't go any nearer," said the captain. "My God! I've heard about these brutes, but I only half believed in them. Came out of the inside of the earth, did they? When I was a nipper, they taught me that Hell was down there!"

"To have come so far and to be stuck here—it's maddening!" cried Rita. "To have risked so many forlorn hopes, had such wonderful good fortune. And now! It's cruel, cruel!"

"Don't think we shall be held up long, Miss Courtney," said Hopkins. "Wind rising—east wind too, which is generally pretty dangerous hereabouts. There she goes, y'see!"

As the gale swept over us, bringing clouds of fine sand with it, we had to get below and swelter under cover till the worst was past; but when we ventured out again, we saw that the sudden gale had blown away the poison-gas.

I need not harrow your feelings by a description of what we found when we entered the zone of silent death. It was Rio over again.

We got through, reached Alexandria, found some shipping that had escaped the gas, and immediately

IF the preceding chapters of "The World at Bay" commanded your attention, the final chapters will prove to be even more absorbing and more exciting.

The Troglodytes are fighting the whole world, and the world indeed is at bay. Who will win and how it will all happen are questions that hold the world's attention. And after even the Troglodytes or the human race win a decisive victory, what then? It is evident that neither of the two races can be vanquished completely.

You will follow the adventures of our heroes with bated breath and you will remember the story long for one of the best of this kind ever published.

The fate of the whole civilized world hung in the balance. A few moments would decide. Either my etheric discharges would disintegrate the molecules of that poisonous vapor into harmless atoms, or the cloud would roll on and on, would envelope us . . . and make the people of the underworld Lords of the upper air as well.

took fast passage for home on the destroyer *Wildfire*.

Her commander endeavoured to get us an airplane, but his radio appeal did not reach any immediately available pilots. Most vessels were actually flying at the moment. The aerodrome and hangars at Port Said lay silent, as did the wireless station. The poison-gas had put them out of action.

We were too restless, too anxious, to wait. The *Wildfire* would have to serve.

As the destroyer forged her way through the Mediterranean at top speed, we learned much more of the doings of the Troglodytes, and the panics that everywhere followed their appearance. It was dismal news, but the captain of *H.M.S. Wildfire* did not seem at all downhearted.

"It is only a question of time," he declared. "The beggars haven't come up against our latest equipment yet. Wait till they try and cross over near Gib., as they seem likely to do. They've tried to find a camping-place in the Pyrenees—wiped out a mountain village or two—and are expected to move across from the Atlas in force. We are going to let them come, but we shall give them a warm reception *en route*. I only hope we get there in time to see the fireworks."

We hadn't the heart to voice our doubt, but we remembered—at least, I did—the confident Brazilian gunners, who lay dead on the hill slopes back of Rio de Janeiro.

And that brings me to mention one item of news that had most important results later. I learned that Dick and I were supposed to be dead. Our one and only message to the *Scoop* had been duly received; a further message from Rio, sent after the catastrophe by an eye-witness of the battle, stated that we were among the victims.

It was also very interesting to have this statement tapped out:

"It appears that one of the hostile air-vessels from the underworld (to accept Mr. Harding's story) has reached India. A message from native sources states that near the village of Roo-poona, Peshawar, a great monster fell to earth in the early morning, and gave out a thick vapour that killed every living thing in the valley. When people ventured to the spot later in the day they found fragments of a strange metallic machine, and the mangled remains of some hideous devils in the ruins of the village temple. This must be the runaway vessel from which Mr. Harding and Miss Courtney made their daring parachute descent into Sydney."

"I guess you two will be the Big Noise when you hit home," was Mr. Hopkins' remark. "Folks won't take much convincing that you've handed out gospel truth. And if and when you deliver the goods in the shape of licking the Trogs—all I can say is, don't forget me!"

"If we get home. We are not there yet," said I. "Look yonder."

We had just reached Gibraltar, and had steamed under the shelter of the frowning batteries of the Rock. A long line of Troglodyte airplanes was swooping towards us from the African coast. And from the summit of the Rock, and from the Spanish mainland came Europe's aerial navy to do battle with the foe.

"Just in time, after all!" cried our captain. "I was afraid we should be too late. Now I can lend a hand."

"I'm sorry to disappoint you, Captain," said I. "But for the time being you are at our service. I think that is the purport of your order from the Admiralty yesterday? Well, that being so, you will stay here at your own peril. If you fire one gun, or one is fired from the Rock, they will just smother us all in a sea of poison. Let us get into the Atlantic and steam for home. We shall see a lot of the fight through our glasses. I'm sorry, but I must reach America. However this battle goes, the world will be at their mercy, unless I can perfect my method of fighting the Trogs with their own weapons."

After a little hesitation, the captain bowed to the inevitable, greatly against his own wishes, and to the utter disgust of all the officers and men. The *Wildfire* stood out into the western ocean, her nose to the north.

Every man who could be spared from actual duty was on deck. It was a clear, calm day, and we had a splendid view of the first great battle in the air. There were at least three times as many Europeans as Troglodytes, but against such strange foes as these our airmen had to learn the rudiments of battle on the spot.

The Trogs appeared to hesitate at first, never having met such a display of resistance before, stopped, and for a time hovered motionless, consulting.

The Europeans rushed to the attack. We were near enough to see the bright flashes from the machine guns, to hear the rattle of their discharges. Then came a greater flash, and the heavy booming roar of the great 100-ton gun on the Rock itself.

"The all-fired fools!" shouted Hopkins, stamping up and down in sheer helpless rage. "They are just asking the Trogs to annihilate the lot. They might have let the Rock alone if the fools had kept quiet."

Close on his heated words came the second report of the gun, and the leading Trog vessel vanished in a burst of flame. But before the crew of the *Wildfire* had stopped cheering came the, to us familiar, "pop" of the Troglodyte guns, and immediately afterwards a cloud of smoky haze was seen to unfold upon and around the famous fortress.

One burst of shell-fire came from its batteries—and only one. Then the sinking cloud of gas hid it from view, penetrated the many galleries, and smote it into silence. The Rock had become a mausoleum.

"And the sooner we get away from here, the better I'll be pleased," said our friend, grinding his teeth. "The neighbourhood isn't healthy."

The issue of the battle was all too evident. The Trog vessels, driven by their powerful radium engines, and able to rise and fall at will, were quickly masters of the situation. Their speed and activity baffled our gunfire, and their fatal poison bombs shot forth in prodigal profusion, enwrapped the Rock, the harbour town, the shipping, and many of our slower air-craft in a billowy cloud of death.

After vainly endeavouring to rise above the soaring

Trogs, to hit them on the move, or even to ram them, the European vessels were either driven off or lost in the gas cloud. Their very method of attack, by mass formation, was their chief undoing. In mass formation they were caught in the cloud and, with their crews dead or dying, only escaped from it to crash aimlessly to earth or sea.

"Is the *Wildfire* doing her best captain?" asked Rita. "Can't you get a bit more speed out of her? We must get home. The Trogs have beaten us, and the way to Europe is open to them. A few hours' flight may see them over London itself!"

A Disastrous Home-Coming

"WE are doing our very best, Miss Courtney," was the captain's reply. "We are going all out. I only hope some of those fiends won't be attracted by our smoke. Rotten smudgy stuff we picked up at Port Said. But they are sending us all the help they can—submarines, cruisers and hydroplane carriers will be on the lookout for us."

"I hope they get to us in time," growled Hopkins, glass to eye. "Some of the galoots are hiking it back to Africa, and one seems to be coming our way. I guess they used up a fair dose of their poison—must have liberated some cubic furlongs of the stuff—and are going back for more. Yes, this chap is after us."

"If they would only drop a little lower, we could soon settle the matter," said the captain. "I'm going to fight to the last. The men are ready at the guns, and one good shell will be enough. If it comes to the worst, the steam pinnace is alongside, and you must try to save yourselves."

"We had better get aboard then," said Rita decisively, when the captain left us. "We might, in the small boat, be overlooked. They will have no idea of our importance, fortunately."

The Trog vessel was gaining fast upon the ship as we climbed down the ladder and set our little craft going. But as the enemy plane gained she rose steadily. They had evidently learned that warships were really dangerous foes.

Why this particular vessel should have followed us, except out of a sheer lust for slaughter, we shall, of course, never know.

We had put nearly half a mile between ourselves and the destroyer when the duel began. A veritable torrent of metal from the *Wildfire* roared and screamed into the sky, but fell short of the upward-leaping Trog —or so we thought. Then came the first Trog bomb.

The gas-cloud quickly curled round the ship, but she drove clear of it. As she emerged, another bomb fell, and as she moved out of the second cloud, she met a third. And now, though she still moved, her guns were silent. The insidious poison had penetrated all her ports, had entered all her ventilating ways. A ship of the dead, she still moved on, trailing the clinging cloud in her wake.

And then, to our intense surprise, the Trog vessel began to fall. Slowly at first, then with increasing speed, and under the impulse of her horizontal screws and the rising gale, in a slanting, downward swoop.

"She's falling! She was hit after all!" cried I. "Glory be!"

"But she's heading this way, and looks like dropping plumb on us if we aren't quick!" shouted Hopkins. "Crowd her along, Sonny!"

The naval engineer crowded her along. It was a race between our boat and the falling Troglodyte vessel. Out of all that wide expanse of water the force of gravity must bring them down upon us!

We cleared ourselves from the impact of the hurtling airplane by about a couple of fathoms. As she struck the water, we had a swift glimpse of her frantic, grotesque crew. They were grunting and screaming in fright, climbing to the highest parts of the upper deck.

The impact broke the vessel to pieces, nearly all of which, with their living freight, sank at once. But one large section of the rear wing remained afloat, and upon this sprawled a Troglodyte. The floating wing drifted towards us, touched the pinnace.

What happened, happened so quickly that it will probably take me a longer time to write of it than the event itself needed for its occurrence.

The pasty-faced creature, his dark goggles lost, was peering at us through nearly closed eyes. In his trembling hands he clutched a flame pistol, trying to level it upon our boat.

Hopkins and I sprang forward together, but I was just a shade the swifter. I seized Rita roughly and dragged her down to the bottom of the pinnace.

It was so near a thing that I felt the scorching heat of the flame upon my back, and a great hole in the boat's side was eaten away by the fierce atomic energy of the discharge. A crack came from the engineer's revolver, a splash in the water threw spray over us, and when we rose to our feet, there was no sign visible of our enemies or the fragments of their craft.

The water was now lapping in at the hole in the side, which all our efforts failed to plug, and only by ceaseless baling could we escape foundering.

It was a backaching task, and very glad we all were when, a couple of hours later, a naval hydroplane picked us up. We reached Portsmouth at sunset. A special plane rushed us to Croydon, and there we were met by a vast crowd. We had scarcely set foot to ground when my Head—the chief of the *Daily Scoop*—forced his way to the front and seized me in both hands.

"Had to come—got across on a submarine—simply had to see you if only for a few minutes—you know you're to stay here—our people have loaned you—"

"What!" I shouted, wrathfully incredulous. But it was true. We had been loaned! As though we were national heirlooms! We were no longer free citizens of a mighty nation—we now belonged to the whole human race, and were easily the most important persons in the world. And wherever lay the greater need, there we must go.

ALTHOUGH our own country had by no means escaped unscathed, yet our hurt was as nothing compared to the damage that had been wrought upon the teeming myriads of Europe. There could be no question but that it was policy to strike the first blow

where the very concentration of the enemy would work against them. Moreover, until by experiment I had perfected my discovery and divulged the formula to science, it was deemed much too risky to expose my person to the perils of such a passage.

"You're famous, my boy," he continued. "Car waiting to rush you up to the Downing Street bunch—special cabinet meeting, all the big-wigs there. If you can only work this anti-gas stunt you've hinted at!"

"Did you look after the apparatus and papers in my rooms?" I interrupted. "I wirelessed from Wellington about the stuff—you haven't let Edgar get them?" I queried anxiously. Edgar is my brother, and a more careless young cub I have yet to meet.

"He had them, Harding, but the Government rounded up all your stuff to the last cigarette—got machinists to duplicate the bits, and took photostats of the Mss. in case of accident. I've got the originals with me," he assured me with much pride.

"Good old U. S.!" I exclaimed thankfully.

We had a long and wearying time at Downing Street, with a number of military, naval, and air experts.

I would rather not repeat the flattering things that were said, nor dwell on the details. A large cheque for expenses, use of Government workshops, and the best technical skill were placed at our disposal.

Thereafter ensued forty-eight hours of the most intense mental concentration and physical strain possible for the human frame to endure.

Every minute of this period was passed in the great Woolwich workshops. I had sole control of every resource and every man in that immense area.

Never once were my clothes removed; I slept in snatches anywhere. I ate in snatches.

And finally, it was accomplished.

A machine for projecting the gas-dispersal rays was built on the lines of my original drawings. It resembled a short, squat, wire-wound gun, mounted on swivel-bearings. I can't go into the technical exposition here; suffice it to say that the current from the motor driven dynamo, fed into the coils of wire, produced an intense magnetic field in the gun, from which the strange, flickering rays shot out.

It looked more like one of the spark producers on a Trog vessel than I would have believed possible. It sent out an intermittent stream of sparkling rays as long as a current was passed through it. We could not, of course, as yet test it on the actual poison gas, but I had little doubt of its efficiency.

Fagged as I was, I sought Rita.

"You won't have long to wait for a test," she exclaimed, as I concluded my report. "The Trogs have established a camp within fifty miles of Paris and an attack is believed to be imminent. The French Government, I have just learned, has asked ours to send you across with your machine. Official request from the War Office coming along any moment."

"Is that all?"

"No, I've lots more news—too much in fact. Our story is all over the world. We shall be able to make tons of money writing. More American towns wiped out. I wanted to urge something—something I've mentioned before—but it will have to wait. Oh, I feel as if this were all a nightmare, as if the world were spinning round inside my head!"

I felt somewhat like that myself. All the long days of perilous adventure seemed to have led us up to a climax of suspense that was going to test our strength, more than everything that had tested us before. If I hadn't been absolutely worn out physically and mentally, I should never have slept a wink that night.

But sleep I did, awaking refreshed for the next task—for the supreme ordeal.

I was ordered to take the sparking gun over to Paris.

We rushed down to Dover by motor, ran aboard a waiting boat, and made a record crossing to Calais. The French roads were cleared of traffic for us, and we reached the French capital in time, and only just in time, to take part in the now historic defence.

The French officials were almost hysterical in their anxiety and wild hope. Four Troglodyte vessels were already at work, firing poison bombs at such of the great forts round the city as had too recklessly betrayed their positions.

"Our guns are splendid, and so are our airmen," cried one of our informants. "But it is so difficult to get the range of the Trogs when they jump so fast and so high. *Ah, ciel, messieurs!* If you can only dissipate their deadly smoke!"

The air shook with the discharge of guns and the concussion of bursting shells. Out of the dusty suburbs we dashed into the city, endeavoring to meet the two Trog vessels that also came inwards.

Half-way down the *Bois de Boulogne* we saw the edge of the first gas cloud. We pulled up only just in time, fixed on our masks and started up the dynamo.

The test had come; the Great Experiment was on.

As I swung the strange gun to and fro, a stream of intermittent crackling sparks, widening out in ghostly, violet waves of faint light, shot from its muzzle into the heart of the advancing cloud. Would it dispel the poisonous gas? Would it disperse that cloud?

The Victory of Paris

THE fate of the whole civilized world hung in the balance. A few moments would decide. Either my etheric discharges would disintegrate the molecules of that poisonous vapor into harmless atoms, or the cloud would roll on and on, would envelope us, would shrivel us to skin and bone, leave us corpses in a city of corpses, and make the people of the underworld Lords of the upper air as well.

A few moments of strained anxiety, such as I pray never to experience again, and then I knew.

It was a success! The crackling flashes of ghostly radiance were dispelling, destroying the deadly cloud. As I turned the gun about as though laying dust with a jet or spray, the masses of vapor thinned and vanished—thinned and disappeared even more rapidly, more wonderfully, than under the influence of the Troglodytes' own apparatus.

I had won!

The sudden relief, the realization of success and all

it would mean, was a joy too intense, too great, to bear.

The Frenchmen laughed and wept; and in the transports of their delight, they hugged and kissed me.

"This is the beginning only, Max," said Rita, recovering her sanity and dabbing her shining eyes. "We have not done with the Trogs yet. Here are some more shells."

The two air-vessels, descending perilously low for them, no doubt to see what had become of their gas-cloud, discharged more bombs at us. They burst within a few feet of us, and I instantly turned the gun on them. A few seconds of the sparkling light and the incipient clouds were destroyed almost before they had begun to be.

Our French friends had seized their opportunity also, and from anti-air-craft guns mounted on armored cars had opened fire on the Trogs. Both vessels were riddled with shrapnel, and crashed to earth.

An urgent telephone call hurried us next to St. Germain, where the other two vessels had begun their fell work. The same tactics again succeeded. I dispersed the gas; the ships came down to investigate; the French gunners saw to the rest. Paris breathed again.

You can imagine for yourself the rejoicings in the gay city that day and night—the world-wide thanksgiving that went up as the news was flashed from land to land by cable and radio.

Rita and myself were the guests of the President at a State banquet, where we were toasted, flattered, and decorated with the Insignia of the Legion of Honor. It was all in the daily papers. We were glad when it was over and they let us go back to our hotel.

The following morning, as Rita and I were breakfasting in a little sitting-room they had set aside for us in the hotel, came news that somewhat damped the ardor of yesterday's rejoicing.

"I've been up at least two hours before you, old sleepy-head," said Rita, "and I've been busy. Let me tell you while we eat.

"The Trogs have become active at home, raiding towns and collecting many prisoners. But what is worse, they appear to have sensed where the centre of population and government really is, and a machine has just been reported off Long Island."

"Good Lord!" I exclaimed. "What's to be done?"

"You—we—are going to make copies of the specifications of your machine, my dear Max. Government orders, of course. The Government couldn't wait to discuss terms—they've simply commandeered your invention, your services, and mine. As soon as Hopkins can get his set of blue prints, he will be sent across in the R33. I think we can trust the American engineers to do their part directly when he lands."

"Exactly how do we stand now, Miss Rita Courtney?" I asked. "I'm a big man, you know. What authority did you give for your—er—activities?"

"A big man such as yourself," she said, with a sly twinkle in her eyes, "cannot be bothered with every detail of the business of saving a world. He must have help—efficient help. I told them I was your private and confidential secretary."

"Precisely! It's an ideal arrangement, no doubt. Don't great men frequently marry their secretaries?"

"Mr. Harding"—she spoke severely—"there's a lot of work to be done yet, we have no time to discuss things of that sort. You will accept the situation, I am sure. And now there is another step I wish to take, but this I could not take on my own."

"Yes?" I had a faint premonition of what was coming. "Yes?"

"It's something I've mentioned before. It's something that should be our very next move."

Ah! I had expected it, feared it!

The Quarrel

"MR. HARDING'S confidential secretary thinks that his next task should be—what?" I asked.

"You know very well what I mean—don't be stupid! You know that we ought to make an effort to rescue some of the prisoners—to seize the Outlet."

"Some of the prisoners, of course. I should like to see Dick again—and John. Especially John. Been better if he had come with us when he had the chance. Then you wouldn't have this bee in your bonnet."

It was rotten of me to display my jealousy like this. I felt that myself, even as I spoke. It was as though, "something not myself, making for—unrighteousness" had spoken through me.

What a strange and complex thing is human consciousness! What makes us at times, even against our better will, say things that we know will hurt those we love?

Rita drew herself up haughtily, pushed her cup and saucer away.

"I think the buzzing you hear is inside your own head, Mr. Harding. You don't at all understand, or else you are wilfully blind—or else I am! I'm beginning to wonder. . . . But we are wasting time. We must make an effort to save John and Dick and as many of the other prisoners as we can."

"And you propose to set about it? How?"

"We are making specifications of your machine for our Government. When that work is done we must ask for an airship and a convoy of planes to take us to the Outlet. A sudden attack there might be successful. We might capture one of their vessels, and go down in it. We are proof against their poison now.

"You would go down there again, if it proved possible?"

If Rita Courtney thought as much of John Rixon as all that, then my hope was vain indeed. It was a bitter pill, a bitter blow to my pride.

To save him, even to try to save him, she was ready to risk both my life and her own.

"You will go, too, Max. I know you will when you have thought it over. Only we two know where the Outlet is; only we two can talk to the Trogs."

"I suppose you have some idea of how we are to capture a vessel of theirs, how we are to work one if we get it, and what we are to do when we reach the bottom of the great shaft? We are not afraid of the gas, but what about their nerve-paralyzing ray? And their flame pistols? How are we to fight those? It

seems to me a mad idea—sheer senseless madness!"

"To you, no doubt, Mr. Harding. To me it seems ordinary humanity. At any rate, in my evidently thankless position as a big Government official's confidential secretary, I have put out the idea to the Press. The world's newspapers will be lauding your chivalrous heroism to the skies to-night. Such a nice halo for you, and you don't want to wear it!"

"Really, Miss Courtney," said I, struggling to keep my indignation within reasonable bounds, "this is too much to expect me to-to-to-er-accept. You ask me to do something I don't see the wisdom of doing, and then coolly tell me that you have already committed me to it. You have got me into a nice mess. I can't very well go back on what you have given out as my own idea; I can hardly give you the sack; we can't afford, in our present notorious position, to indulge in a public quarrel. Really, it's—er—a bit too thick!"

Rather lame reasoning, I admit; but my nerves were all jangled, and the gnawing of my insensate jealousy goaded me on.

"Not indulge in a public quarrel? Of course not. But our present position does not prevent you trying to provoke a private quarrel with me, Mr. Harding. You are actually shouting, scowling, growing red in the face. I hope the waiters don't notice anything. If you go on like this, I am afraid I shall have to give you notice. The position will be too trying."

"As soon as you please," I snapped, suddenly. "After all, our being thrown together in this affair was purely accidental."

At that moment I was really sincere. I knew that it would be far better for my peace of mind, now that it was evident Rita was not for me, to see less of her, to be less with her.

The expression that darkened her eyes was indescribable.

"You will not understand," she cried angrily. "If you say that again, I shall take you at your word. I shall think that you want to get rid of me.

"No, let us be calm and sane. I still feel that my idea is the right one—that, quite apart from our duty to the prisoners in the underworld, it is our best policy to attack the Trogs at home, to seize and hold the Outlet. I shall be very much astonished if Europe's General Council—didn't I tell you the various Governments had agreed late last night to drop their silly isolation and act together, under one command?—does not agree with me. You can oppose the idea, throw difficulties in the way later, if you like, but don't talk to the Council as you've talked to me."

I was piqued, sore, insanely bitter, and wracked by jealousy. Somewhere inside me a voice was saying that Rita was right, that if I loved her I would rise above my own miserable, personal irritation. And yet I would not let that inner voice speak.

A bitter gibe, an unworthy taunt, was on my tongue. I might have said something that would have alienated us for ever, but at that very moment a page-boy ran up.

"Urgent radiogram sir!"

I grabbed the envelope, tore it open.

"Troglodyte vessel threatening London. Sighted near Barnes. Trailing long net. Poison gas put one anti-aircraft depot out of action. Return with your sparking gun at once. Transport ready at every point —Carrington, Commander-in-Chief."

London's Peril

RITA jumped up and grasped my hand across the table.

"It sounds awful, but I'm glad in a way, Max. You were going to say something particularly dreadful. I could see it in your face. Now we shall just have to drop our silly quarrel and get to work. I'm packing you off this moment. I am staying here to get out these copies of the specifications. When the patent rights are secured, I shall despatch the copies to the various military centres that require them. Hopkins will start for New York the moment he gets his copy. I'll see to all these details—off you go!"

It was an immense relief to have to act, instead of talk—to have a secretary so resourceful—to have finished with our wretched recriminations.

I admired Rita Courtney more just then than I had ever done before. I was ready to eat all my words, and should have done so, if she had let me. But she was, like all women, intensely practical and matter-of-fact at the proper time.

I was hustled out of the hotel to the garage, and, with the sparking gun, was shortly on the way to the coast. A fast destroyer was awaiting us in the Channel and rushed us across to Dover. There we transshipped to a special train, which, with line clear before it, prepared to give us a record run to the Metropolis.

But whatever the speed, it was too slow for one's thoughts. Every moment was precious, charged with fate. Long before I reached London it might be lying silent under a sea of smoky cloud. I might only arrive in time to witness the aftermath of that crowning horror.

I stepped out at Waterloo fifteen minutes under express time. General Hartopp, the well-known air force expert, greeted me thankfully.

"All ready for you, Mr. Harding," he said. "Men and motor lorries waiting to take you anywhere. No damage done since Carrington sent you his radio. The beggars are hanging over Muswell Hill at present—at a tremendous height. Been circling around for hours. Either waiting for reinforcements, waiting for more of our guns to reveal themselves, or else somewhat staggered at the size of London. What do you advise as our first action? I had thought of running out to our No. 3 anti-aircraft station, firing at them, letting them drop a few bombs, and then showing them that their gas is useless."

"Have you got the streets clear, in case we need to move our gun about freely and rapidly?"

"That's the worst part of this complicated business," was the General's reply. "You see, folks don't know where the next shell may drop, and they are on the verge of panic. Trains, tubes, trams, buses, taxis are all busy with people on the move, all outward bound. We have all the men on duty that we can possibly get; but London is so vast, so unwieldy, that any moment

we may be swept off our feet in a frenzied rush. We have spread the news of your Paris success and the fact that you are now due here, but they feel that you can't be everywhere at once. The very next shell that falls may be like a match put to powder. Panic—disaster."

"It mustn't fall, then," said I, making a sudden decision. "Have you any army balloons in commission in the London area? The only place to fight this fellow safely is in the air itself. I've been thinking it out all the way across."

"In an ordinary gas-bag? Great Scott! Never thought of that. They can outfly and outsoar our planes, worse luck. Yes, we have a couple of biggish gas-bags in the Crystal Palace grounds—we kept sending them up on look-out duty. If you are really serious, Mr. Harding, I'll wire for one to be got ready at once.

"But—what about their paralyzing ray?"

"A couple of pieces of thin sheet lead, to act as shields," said I, with a sudden inspiration. "That should protect us—if you will go up with me? I've an idea it will be well worth risking. Their gas need not bother us—it sinks as it expands, and we shall be jumping up. We can safely leave the gun down here in the care of some of your handy men."

"I don't quite see what we can do if we go up, Harding?" said the alert airman, "but if it's good enough for you, it's good enough for me. I'll go up with you. Jump in here, wait till I've wired to the Palace, and we'll start."

Our chauffeur, experienced transport driver though he was, wiped the perspiration from his brow when we pulled up at our destination.

"Wouldn't do that run again for a fortune!" he jerked out. "Only God knows how we did it!"

The balloon, already nearly inflated when the General's order arrived, was released, immediately we stepped into the basket. The earth fell from under us instantly. In a few moments we were hanging in emptiness, London far below, rising quickly.

"Two—three—four thousand feet," said the General, consulting the barometer. "Still going up. The sun is warming the gas, and there's scarcely a breath of wind. We shall soon be alongside the enemy—if only they will condescend to wait for us. What's the programme?"

"My idea, General, is to capture that vessel," I said, pointing to the Troglodyte airplane hovering still above us, and now slowly moving about as though uncertain what to do. "You be ready to throw out ballast when I give the word, for we shall need to jump up soon and jump quickly. I think I can do the rest. Have your lead shield handy."

Up and up we went till we were almost on the same level as the Trog. They fired a gas shell at us, that burst into a grey cloud. A sack of ballast overboard and we were above the danger.

How I envied the Trogs their ease and rapidity of movement. They rose slightly, floating just above us, and drew slowly nearer in a spiral curve.

Hartopp and I had each got repeating rifles, and at my signal we both fired together at a Trog who was pushing a paralysis tube over to take aim at us. With a yell of pain he threw up his arms, and the deadly tube pitched overboard.

Just at that moment a cloud passed slowly between us and the sun. Came a chill breath of air, and with that coolness, the gas in the envelope contracted enough to send us down two hundred feet.

Only the prompt sacrifice of ballast and the return of the sunlight sent us up again in time to escape the second gas cloud they tried to smother us in. But now we were above them, and our chance had come.

Looking back on our exploit now, I can see only too clearly what a mad insane freak it was. Had the Trogs been half as daring as we were, had they taken the measure of our powers, that day would have seen the end of Max Harding and General Hartopp. Our very confidence must have scared our foes, and their own confidence and curiosity proved their undoing.

"Pull the valve cord, General, and drop us alongside," I cried. "Poke your rifle over the basket-edge, and drop the first beggar who makes a move. Now!"

Rita's Appeal

IT seems incredible even to me, in retrospection, but the stratagem succeeded.

As balloon and airplane came alongside, hanging level, our rifles spoke rapidly. The Trog who was at the control wheel, and another who was training his flame pistol upon us, collapsed with ludicrous urgency. Hartopp fired again and dropped a third.

They jumped up a hundred feet; we threw out more ballast, and followed them. We were now not six feet away.

"Surrender your ship, or we shall destroy you all! Descend as we descend, give up your weapons when you land, and your lives shall be spared. If you refuse, we shall follow you, and kill you all with our fire-guns!"

At least, that's the purport of what I yelled at the Trogs in the best I could manage of their language, and in the most swaggeringly raucous voice I could command.

It worked! They grunted and screamed aloud in their surprise and fright at hearing their own tongue.

"It was a fortunate thing I knew enough to make them understand," I said to Hartopp. "What a gorgeous bluff! They could get away from us any moment if they weren't too scared! They're coming down! Drop us gently, side by side, and keep your rifle on them."

"Right-oh!" said the imperturbable airman. "She's emptying fine. We shall land on Hampstead Heath, if this little breeze holds. Splendid, Mr. Harding, splendid."

Just on the edge of the Heath the Trog vessel came to earth. A crowd that had gathered to watch our descent ran to seize our trail rope; a squad of Royal Air Force men rushed to the spot. Then we were afoot and quickly disarmed our seven Trog prisoners. They were too surprised and dazed to offer resistance, as the soldiers—to save them from the threatening mob—pushed them into a motor lorry and drove off.

For the time, at any rate, London was saved. And

what was almost more important was the moral effect of this second victory. Humanity took heart of courage once more. On sea, on land, and in the air, it was proved that the Trogs were not invincible, and that they could be fought and beaten; and all the world, from that moment, set itself to work upon the one supreme task of ridding its surface from the destroyers.

I skip over the rejoicings and ovations of that day. They were sufficiently embarrassing and upsetting to a shy journalist without having to write about them! I come to the evening of the day after, when, in company with several of the best engineers in the Air Force, I was examining the captured Troglodyte vessel. A big marquee had been put up over it, electric light wires run across to it, and a cordon of regulars kept off the crowd.

The engineering details of the ship were a revelation to us. In particular, the simple construction and tremendous power of the radium motor excited our admiration. The method of breaking up the radium and releasing its atomic force was very wasteful, we could see; but what did that matter to the Trogs when they had tons of the material only requiring to be mined?

There was enough motive power aboard, we calculated, for a five-thousand-mile non-stop flight. There were ten gas bombs, three nerve-paralyzing guns, and four flame pistols.

With the help and advice of one of the Trog prisoners, who seemed more amenable to reason than his companions, our men quickly learned the use and control of the various gadgets. Very carefully, but very successfully, we made a trial flight of an hour. We rose and fell vertically; got up a horizontal speed of 200 miles per hour. We shot out a gas bomb—and dissipated it with our own spark-ray; we paralyzed one of our number—and brought him out of the helpless state; we learned that the atomic discharge of the flame pistols was so great that each pistol could only fire once and then was useless. It was a weapon which every Trog, on reaching maturity, was given to keep, as a weapon to be used only in the last resort.

When we had descended after our successful trip, and the vessel was being hauled into the shelter of the big tent, somebody suddenly materialized out of the shadows at my side. Rita, tired-eyed, smiling.

"Crossed over and came up at once, Max. Did all the work arranged. You are wonderful. Do you know what this capture means to us?"

"It means that we can fight them on equal terms now—soar as they can soar. We can build a fleet of vessels such as this."

"Is that all! I just hate to spoil anything, but where are you going to get the radium from? You and I know where there is plenty."

"Still harping on that mad idea, Rita," said I. "We are going to beat the Trogs to their knees first, and one of our conditions of victory will be a supply of radium from below. Another will be the release of all our prisoners. The General Command is considering all that at this very moment. Expecting news any time now."

"As a matter of fact," replied this amazing woman, "I've just been advised of their decision. They see the case as I see it. They think we ought to try to seize the Outlet, hold it, and then make terms with the Trogs. You and I, being the only persons who can make ourselves understood by the enemy, must go there. And that is what this splendid capture of yours means, my dear, stupid Max. With this vessel, we can carry out the expedition."

"And, incidentally, we risk the vessel and our own lives? And with this vessel we can even descend the Outlet, and make an effort to rescue—well, John Rixon at least!"

Rita gave me her hands and looked me straight in the eyes.

"Max," she said, in a low voice, "will you listen to me just this once? If we can save John Rixon from that living death underground, we must do so. A great man such as he must not be lost to the race. I know—why shouldn't I admit it? —that you love me. No, don't speak yet. I know it, I can't help knowing it; I'm glad to know it. But I should be gladder still to know that you could rise above the jealousy that mars ordinary folk; I want you to try to save him."

"You want me to try to save him for you—to give up all hope of winning you for myself?"

"It's your test, Max," she said. "I shall know then that you love me with the sort of higher love that every true woman values in her inmost heart. I shall know that you are living up to the high standard I've set for you. You will come willingly, you will help me?"

Back to the Underworld

WHEN Rita Courtney appealed to me like that, could there be any doubt about my response? My hard mood broke up, giving way as a log-jam suddenly "gives" on a Canadian river.

"I will help you willingly, Rita; I will do anything to make you happy. When do we start?"

It sounds banal, antipathetic, but "high-falutin" heroics were never in my line. I couldn't put into words the feeling I had, that some psychic understanding had leapt from soul to soul, that in some mysterious way Rita Courtney and I were nearer to each other in that moment than we had ever been before.

"If the vessel can be got ready, we start in the morning. The General Command is very keen."

She released my hands, gave a little sigh of relief, of content.

"I will see that it is ready," said I. "Our folks have taken all measurements and particulars of the airship and its engines, and they will be able to build a fleet to pattern if required, if we can manage to bring back a supply of radium from down under. What I am not quite happy about, Rita, is exactly what we are going to do when we reach the bottom of the Outlet—if we get that far."

"I'm hoping that John will be expecting us," said she. "You know that he and a few more prisoners were trying to manufacture crystal radio sets, as there were plenty of suitable minerals in the rocks, and lots of wire. It is queer that the Trogs, for all their

mechanical cleverness, never invented radio. Well, all the Governments are now busy sending out powerful long-wave radio messages in Morse, on the chance that John may pick them up.

"And we shall not go to the Outlet alone. We shall be convoyed by a squadron of fast airplanes and followed by several big airships with supplies. We shall settle in the great crater, and while we are descending the shaft, the others will be able to deal with any Troglodyte vessel that may be returning to the Outlet. Remember, they can know nothing of what we are doing, and will be quite unprepared for our coup."

It sounded all right. Rita's heart was set upon the expedition.

Taking with us the Troglodyte prisoner, who seemed less scared, less hostile than his fellows, we began our southward voyage next day. We had a great send-off from Hendon, and having fitted a receiver aboard, were in touch with news all the way. The vessel was steady as a rock, and proved wonderfully easy to control once we had mastered its features.

News came in constantly, and everywhere humanity was recovering from its panic and despair. Everywhere the Troglodytes were being met with resistance, were being attacked.

Arsenals and workshops in nearly every country were busy making "dispersers."

The worst news came from South Africa. The Trogs had been more thoroughly vicious there, in a more wholesale way, than anywhere else. Their raids had so disorganized the life of the community and so worked on the superstitious fears of the natives, that there had been a great black uprising.

A new T'Chaka had arisen, and the dreaded Zulu impis once again swept over the land in a torrent of slaughter. Coherent resistance there was none, though the holding of Johannesburg by the whites will rank in history with the heroic defense of Lucknow.

The railways were deserted and rapidly overgrown. The smoke of Kaffir kraals went up where once had been white men's towns; the beasts of the wild came back south of the Orange River. It was a melancholy story—a glimpse of what might have happened in Northern Africa, in India, in the Southern States of America, had no fortunate help come to the world, had not Rita and myself escaped in time.

"It is not modern to talk of Providence, of a Controlling Hand in our affairs," said Rita. "I once used to scoff at such ideas myself. But now I'm not so sure. I have a feeling which I can't get rid of, that there has been more than coincidence in our adventures. We have been guided, protected, spared—for a purpose."

"I believe that, too," said I.

We reached the devastated area, the vast, arid wound on the green face of the Amazon forest, without mishap. We descended vertically to the flat space used by the Trog vessels, and our ten convoy 'planes came to rest on the best patches of ground they could find. Later, the three large airships arrived, carrying petrol and other supplies. And then we came to the snag that we had discussed till we were tired of discussion. In the Trog vessel we had, of course, a "disperser," which got its power from a radium charge. That we should have to take down with us, to protect us from a gas attack either in the shaft or at the bottom.

Then what of our convoy left above? Their guns would, no doubt, make short work of any Trogs coming home unsuspectingly; but what would happen when some more alert Trog captain heralded his approach with gas bombs?

Our only hope was in making the descent of the shaft, rescuing our friends, and returning before disaster happened.

All my doubts, objections, fears, came back to me in full force as the helicopter, after hovering above the black centre of the crater, began its downward journey. The Troglodyte prisoner assisting us eagerly—he was going home!—we let the vessel fall like a plummet into the darkness. Then, carefully, gradually, we brought the lifting screws to work, checking our speed, and so, grinding, roaring, we went down, down.

It was madness—sheer, stark madness. I was a fool, the authorities were fools. We had let ourselves be hypnotized by a woman's fierce resolve to save her lover. And I? I loved her, and I was throwing my life away—and her own life, too—to save my rival!

Into the Depths

At last, we emerged from the long darkness, came into the great opening at the foot of the shaft—into the flickering phosphorescent light that lit the strange scenery of that strange world with its ghastly glow.

The vessel grounded with a jarring shock, settling alongside another 'plane that appeared to be deserted.

Of course, we had counted upon the unexpectedness of our descent for our immediate safety. The Trogs could not be aware of our coming, would think the vessel was one of their own, manned by some of themselves. The quiet, unmolested landing, however, was nevertheless uncanny.

Very few Trogs were in evidence, but a couple of people who were walking about—a couple of humans, unshaven, ragged, dirty, dejected-looking—suddenly rushed up to us as we stepped down to earth.

We were shaking hands with John Rixon and Dick Martin!

"Have to pour it all out right away, Max," said Dick, in a husky voice. "No time to be polite. Things haven't panned out so badly, but it's just touch and go with us at this moment.

"Then they didn't imprison you when we got away?"

"Oh, yes, they did, and a rough time I had of it. But good old John got me out. He doctored the Great Panjandrum again, and the old chap was so pleased he set me at liberty when John asked him.

"Now we are fixed like this just now. We have left the prison camp down under—hopeless!—and have managed to hang round here. We try to get a word with the new arrivals, warn them what to expect, and so on. But His Royal Nibs has got another touch of the "flu"—lots of the Troggies caught it on their voyages and brought it down with them—and, from all we hear, he is in a vile temper. He will be sending for John

almost any minute, and if he isn't cured slick this time, and really cured, well—it's us for the great beyond. I'm glad you've got here in time."

Then drawing me aside, Dick whispered:

"Don't be too jolted when you get talking to John. He has worked himself to rags, and had one or two touches of the "flu" himself. He's about at the end. If you hadn't come now, I'm afraid you would have come too late to save him. I'm not feeling particularly fit myself, I can tell you."

I turned to greet John Rixon as he relinquished Rita's hands. He had been holding them as though he would never let go. It was fortunate that Dick had given me those words of warning.

Such an utter change in a man I have seldom seen. And yet I ought not to have been surprised, knowing the work he had done and the deadly horror of that underground world in which he had lived and toiled. The marvel was that he—or any of us—had kept sane and preserved life and spirit at all.

His face was pinched and drawn, his frame was shrunken, his hands were unsteady, there were streaks of grey in his dark hair. Only the eyes held their old fire, their old force.

"Glad you succeeded, glad you've come, Harding," he said. "Dick will have told you how we are fixed here. I never thought both of you would have taken this terrible risk."

"Then you heard from us—you expected us?"

"Yes, after your message. We have got a couple of crystal sets, of sorts, and a fellow who can read Morse like a book. If only we could have sent you a reply! I would have stopped Rita coming down here again."

"You wouldn't, John!" she cried.

"It's foolhardy work, Rita girl. Mad. Senseless. It is very unlikely we shall get away unless we start soon. You are surprised that I'm leaving the prisoners to their fate? The job has got beyond me. It's awful, horrible, down there. All sorts of folks—mixed races—black, yellows, browns. They are out of hand. Won't listen to reason. Have to be driven to the mines like slaves—or beasts. I can't bear to think of the things I've seen. There has been jealousy, suspicion. Some of the prisoners, seeing us going about freely, have accused us of being traitors, of being paid tools of the Trogs. They nearly killed Dick once, and I've been threatened often.

"I'm not coming away because of that. The position is absolutely hopeless, and I'm not the man I was when you went up. I'm not the superman I thought I was—God forgive me!"

"I'm ready to go back at once—we had better start."

"Aren't there any more we can save? The vessel will carry at least a score."

It was a dreadfully changed John Rixon who replied to me.

There was no time to be lost; it was impossible to get down to the prisoners' camp beyond the lake and the prison works; even if we got there we should be mobbed, attacked. We must save ourselves.

Much as I had disliked the man, I found now that I had admired, respected him still more. It brought a queer, lumpy feeling into my throat to see him thus.

And at the same time I felt that thus broken and despairing, he was an even more formidable rival, than the old resourceful courageous, dominant John.

Rita would pity him, yearn over him. Even if she had not loved him before, she would assuredly love him now. For not only are Love and Pity akin—they are woven of the self-same mind-stuff. I saw the faint hope that I had begun to cherish anew, in spite of all sense and reason, fading away.

For knowledge of the catastrophe that happened in the next few moments we have to rely on General Hartopp's vigilance. Whilst we were absorbed in our meeting, he had turned to the wireless and, with earphones on, was listening to news from above ground. Even the strange world into which we had come did not divert him from his duty. He got the news "All well," he told us afterwards, and then noticed our Troglodyte prisoner making signs to a group of other Troglodytes in a distant part of the vast cave.

The prisoner went on to hammer on the metal framework of the vessel—systematic, rhythmic tappings that were quickly answered by a faint cadence of similar noises all around us.

Being sure that our prisoner was in some way betraying us to his folk, Hartopp sprang upon him, closed with him, and bore him to the floor of the hold. We heard the tappings and the answering signals and rushed to his aid.

In the struggle, the Trog managed to secure the flame pistol carried by the General—we had all armed ourselves with one of these weapons when we captured the vessel in London—and immediately discharged its enormous atomic energy.

But the Troglodyte did not trouble to expend that energy upon us. He aimed at the ship's engine and lifting propeller. When the blinding, searing flash of light went out, a hole, a void, a nothingness was where the motive power and mechanism had been. The vessel was now a useless, immovable hulk!

Once more we were captives of this underworld.

The Crater Is a Sea of Gas

FOR a moment we were shocked into stupid inaction. All of us, that is, except Hartopp.

He is a big man, with a strong Irish strain in his ancestry, and tough and agile as the Trog was. The airman got him down, pinned him to the deck. With one hand he held the creature by the throat; with his service revolver gripped in the other hand, he nearly finished the job.

"Stop! Don't!" cried Rita. "Hold him, but don't kill him. We want him. He will be useful. Besides, it was splendid of him to act like that! He is loyal to his race, to his people."

The Troglodyte could not understand her words, of course, but he evidently grasped her meaning. He ceased to struggle, and when Hartopp reluctantly released him and allowed him to scramble to his feet, he shook himself like a dog just out of the water. Then he turned to Rita with an expression of gratitude that was almost comically pathetic. His pasty white face

was wrinkled in a most ludicrously ugly fashion.

Love, Sacrifice, Justice, we had already found these in the underworld. Now we could add to them Loyalty and Gratitude.

By now the whole great cave was full of life. Troglodytes were running towards us from all directions, and the rock tappings sounded all around us, and several airplanes emerged roaring from the shadowy corridors in the dim distance.

"Roused a regular hornets' nest," said Dick. "We look like being well stung. I was afraid we couldn't get away with it. What's our line?"

"Stand by the vessel, what's left of it," said Hartopp, assuming command. "Luckily our radio set is still intact. We are still in touch with our people up above in the crater."

The Troglodytes were now all around us, closing in upon us, an alarmed, a curious, an angry crowd. Many flourished their long metal rods, some of them threatened us with their precious flame pistols.

On our part, we held our own weapons and the two flame pistols we still possessed well in evidence,

"We had better parley-voo a bit, or whatever you call it down here," said General Hartopp. "Ye gods! What a hole! What a nightmare crush of hobgoblins!"

We expected a fierce attack every moment, but for some reason or other the Trogs held back. They surrounded us, they threatened us; that was all.

"It is strange that they did not try to paralyze us with their violet rays," murmured Rixon. I say "murmured," for the force had gone out of the man's once strong voice. "They could easily do it. It is a regular occurrence down—down there."

"They are afraid of the flame pistols we carry," said Rita. "Also, I think they are afraid of our paralysis tubes. Luckily, they don't know the tubes were destroyed along with the motors just now. Besides, John, I believe the Trogs are waiting for the tall person, Dick so irreverently terms the Big Noise—otherwise the Troglodyte chief. They are very puzzled about us, too—how we came to have their vessel, and why we have ventured down here."

I noticed that she had drawn John Rixon's arm through her own, was soothing him by word and tone as one would comfort a sickly child. Oh, I was a fool, a mad fool! What was I doing here? Why was I not breathing the pure, free, sunlit air of the upper world, instead of waiting for certain death in this gloomy land of shadows?

Rita went on: "I have not yet given up hope. We must make our prisoner talk to them—he will be more fluent than either Max or myself. We must get him to tell them how we are defeating them above ground, how we have seized the top of the Outlet, and that we are ready to make terms."

The prisoner, prompted by us, got up and spoke to his fellows. He grunted, gesticulated, rolled his eyes, swung his arms. We could follow him well enough to know that he was telling them how numerous and desperate humanity was, how we had captured the airplane, how Rita had saved his life.

It didn't make any difference to the hostile crowd. They growled, grimaced and threatened us the more. Yet they shrank from action.

"They wait for Ul-Ulfa, the chief," said our prisoner. "See—he comes!"

An air vessel emerged from one of the distant, shadowy corridors into the great opening where we lay. The tall, broad-browed, dignified Troglodyte who had passed sentence on Ulf and Ulla, on Dick and myself, alighted from it and advanced towards us. A guard of a dozen squat Troglodytes, armed with flame pistols, came with him.

As he approached, every Troglodyte bowed to the ground in reverence. As he passed them, they stood up again, eager, angry, expectant, ready for instant action.

Ul-Ulfa spoke rapidly with our prisoner, so rapidly that we could scarcely follow him, and our Trog replied in the same staccato fashion.

With every nerve strung to highest tension—or so it seemed till a few moments later—we listened and waited.

Then Hartopp, who had intermittently been switching our receiver on and off, clapped the headphones to his ears suddenly. He broke in upon our silence with a smothered expletive. His face went pale, despite its ruddy tan. He started speaking in quick, jerky sentences.

"A message from Bennett, top of the Outlet. Attacked by fleet of returning Trog vessels. Lot of gas bombs fired. Caught our chaps unawares—came at great height. No chance. Bennett's aero last one untouched. He was making desperate efforts to get going before the poison cloud reached him. He told me: 'The crater is a sea of gas; it is closing round us; it will be a close shave. I think—' and there his message stopped."

A Royal Hostage

WE knew too well what that message, that unfinished message, meant. I could see as plainly as though I had been above ground, the sudden rain of Troglodyte bombs from a clear sky; the unrolling of the grey poison cloud as it sank into the crater, filling up the vast cavity as water collects in a shallow pool; the game and frantic efforts of our airmen, all too late, to get their vessels going. I saw Bennett's wireless operator sending us his message, speaking to the microphone up to the last moment, till the gas rolled over him, silencing him forever.

Nor was that the worst of it. The Trogs once more were masters of the Outlet. If they dispersed the gas and came down, we should be liable to attack from overhead. If they had any inkling of our expedition, they might leave that sea of gas for a time, and return for us would be impossible, even if we had a vessel in working order. And that they would not guess our purpose in occupying the Outlet, that they would not know that we were at the foot of the shaft, was very unlikely. We had come to rate their abilities rather higher with fuller knowledge of their ways.

"I'm afraid this is the end, really the end," said John Rixon. "I'm sorry, Rita, for your sake. For myself

—well. I've got into that state of mind when nothing seems to matter very much. We must take whatever punishment Ul-Ulfa gives us."

"Not without a fight though!" said Hartopp, with grim determination. "They may kill me, but they will never take me to die down there in the mines you've told me about."

"Listen; His Nibs is talking to us!" cried Dick.

The tall Troglodyte stepped nearer, away from his guards, seemingly confident and unafraid. He began to speak, and then—

He sneezed!

Yes—sneezed. Sneezed violently, uncontrollably, rapidly. Sneezed as though he were never going to stop. The sort of sneeze that rasps your throat and makes your sides ache. And he flourished a huge, dirty pocket handkerchief.

"The only rag I had left—I gave it to him," explained John Rixon.

Into Rita's eyes came a sudden gleam of light. I had seen that gleam before, and I knew that she had found some hope of escape, some chance, some possibility of rescue from our dilemma.

"Have you any quinine left, John?"

Rixon produced a small bottle from somewhere in his ragged coat. He rattled the contents.

"Two tablets—that's all."

"Then invite the king here, and offer to cure him if he will spare us and send us aloft."

"He may promise, but that's as far as we should get," objected Dick. "Much as they all kow-tow to His Nibs, I fancy there are limits to their docility. I've heard some of them talking on the quiet. If he gives us a free pardon, I'm dead sure some of the others will do us in."

"Never mind just now, what you fancy, Mr. Martin," snapped Rita. "We are in a position where we must take risks. I have a plan that may yet save us. Get the chief here, John, and hold him in conversation about his cold. All invalids like to talk about their ailments. Sympathize with him. And whilst you are talking to him, keep one ear open to what I'm telling the others."

Rixon obeyed without a questioning word.

He must have been very persuasive, very convincing, for the Trog chief, his fit of sneezing over at last, stepped up to the deck of the damaged airship fearlessly, and stood listening to our friend. Pleasurable relief and angry annoyance struggled for mastery of his face.

"I want you to see exactly what I'm driving at, and to act upon it at the first possible moment," said Rita, speaking rapidly. "You have all heard of the conquistadors, the Spanish conquerors of Mexico and Peru. They were a handful of men, fixed as we are, in the midst of a big hostile population. What was their first move? They seized the person of the king. Cortez got hold of Montezuma and Pizarro, kidnapped Atahualpa. The subjects of each of these kings held them in such reverence that for a time the Spaniards were able to do what they liked. They made the captive kings give orders dictated by themselves, and the people obeyed. Now, we have Ul-Ulfa in our grasp. We must seize him, keep him, and use him as a hostage for our own safety. And we must act at once."

"You are great, Miss Courtney!" cried Hartopp. ("Another victim," I groaned to myself.) "Leave that part of it to me. Now then, all of you. Ready? Here goes!"

The big man pushed Rixon aside and seized the Troglodyte king, pinning his arms to his side and spinning him round violently. A fierce chorus of grunting screams rose from the spectators, and the crowd rushed to the attack.

The nearest guard, recovering from his astonished stupefaction at the sight, sprang toward Hartopp. The General loosed his left hand, found his service revolver, and shot the Trog dead.

Then he pressed the revolver muzzle against the head of the king, whom he now held at arm's length by a grip on the collar of his rough tunic.

The king didn't struggle at all. He seemed too astonished, too dazed, too shaken out of his wits to make any effective resistance. He was unarmed except for a flame pistol, which Dick deftly removed from his girdle.

"Tell 'em what's what, you folks!" roared Hartopp. "Tell 'em I'll blow his head off if they do a thing to us! I can't hold him like this very long."

Rixon stood up, facing the infuriated throng.

Would they listen to him? Would they understand? Were they as concerned about the life of their king as we hoped?

We Make a Truce

RIXON had to shout—and a forced raucous shout it was—to make himself heard. But he did make himself heard, and the rush was checked before any damage was done. Of course, standing on the deck of the air vessel and protected partly by its metal sides, we had the advantage of position.

And Hartopp's dramatic pose was, no doubt, eloquent. If they could not understand all the halting "Troggese" of John Rixon's remarks, they could not fail to see their king's danger. They had seen their comrade go down to one shot, and must have realized that we were as formidable as we were desperate.

"Your king has come to us for cure of his disease," was what John Rixon said—or tried to say. Anyhow, the gist, the meaning, "got across." They waited, silent at last. "I shall cure him, I shall make him healthy again. But I shall not do this unless he is here with us. He shall not come to any harm, but we shall guard him with our lives. You will bring food and drink for us—and for him. But whilst we are in peril from any of you, we shall not let him go from us."

There was a brief, stupefied silence. Then a Trog pushed himself to the front.

"Let Ul-Ulfa speak," he growled. "Let the king tell us his wishes with his own lips."

A chorus of shouts gave approval.

"Tell them that you agree with me, that you will stay with us, that no harm is to come to us," said Rixon. "I'll cure you, but only if you agree. If you don't—"

He nodded to Hartopp, and the airman pressed the cold circle of steel into the king's ear.

"I agree; you have me in your power," said the king, not without a scornful dignity. Then, turning and facing his subjects, he spoke to them. He spoke quickly, he spoke a long time. It was hard to follow him, but we managed to learn that he told them he was in our hands for the time being, and that they would have to accept the situation.

At the end, with many angry and threatening cries and gestures at us, the crowd bowed to him and dispersed. A few knots of them remained in the great cave, however, disputing amongst themselves.

"Some of the big guns of the underworld," said Dick. "I've heard them at it before. Not exactly republicans, but they don't hold the king's life in quite so much esteem as the rank and file do. They don't like his leniency to me and John. They may make mischief yet."

"The fact remains that we have come out of that very well," said Hartopp. "But now we have secured our royal prisoner, what are we going to do with him, Miss Courtney? Better tie him up to prevent his straying away, first thing. Then we must make him get us a vessel fitted up to take us away."

"I don't think I should tie him at all," said Rita, thoughtfully. "There are five of us, and one can always be on guard. I feel sure he quite understands the position, and knows that at the first hostile move, either on his part or on the part of his people, we shall kill him. And he doesn't want to die. He doesn't like being ill with this nasty ailment he has caught from someone who brought it down from our world. In fact, he's very sorry for himself, and it's up to us to do more than keep him and cure him."

"More?" This from Hartopp.

"Yes, we have the finest opportunity we shall ever have of putting an end to this terror. We must convince him that his cause is hopeless. We must use him to make his people surrender!"

"It's a great idea!" cried Dick. "Meantime we are stuck down here and don't know whether we shall ever see the sun again."

"There's the radio; we may hear news of what they are doing to rescue us," said I. "Bennett's message must have been received by others besides ourselves. It's a pity we didn't try to bring some sort of transmitting instrument down with us, but, of course, I expected we should be back safely before now."

Hartopp turned to the receiver, switched it on, twiddled his dials, puckered his brows. Then he pulled out the front and examined the wiring at back.

"All O.K., and yet nothing coming through. Can't understand it. Ah! Hang it all—nothing but a blurred roar!"

At that moment the prosphorescent light that fitfully lit the cavern was glowing at its brightest. Rixon consulted his wrist watch.

"Just noon," he said. "I'm afraid the radioactive light, when at its peak, neutralizes your valves. You will get nothing more till the light dies down. I've found out that it reaches a maximum at midnight and noon—in fact, it's a sort of tidal wave of etheric energy resulting from the earth's rotation. The Trogs make their time measurements by it, and their 'day' is almost exactly the same as ours. You'll have to wait."

Waiting was just what we wanted least of all in our nervous state, but there was no help for it.

To pass the time, we practised our Troggese on the king and the prisoner. They were as restless and worried as ourselves. Ul-Ulfa, in particular, proved eager to talk.

He had heard much of the strange wonders of the outer world from his own people as well as from John Rixon.

Of course, with a touching faith in the latter's healing powers, he had already swallowed the two tablets of ammoniated quinine. He believed he would get better at once, and his belief was no doubt a great factor in his immediate recovery.

He desired to go out and see this strange, cold, dazzling light upper world for himself, but the Council of Elders had refused to let him risk his royal person in such dangerous regions. We gathered that he would not object to going up with us if we guaranteed a safe return. The chief fear he had was, that in his absence, the Trogs might elect another king.

We even got a few gleams of light on the history of the Troglodytes—gleams confirmed by bits of information picked up by Dick and John.

It seems fairly certain that the dominant Trog race we had met were the survivors of a long and bitter warfare between various races of the underworld. It had been a fierce struggle, waged without mercy. The victors had compelled the beaten tribes to work the deadly mines for them. The work had exterminated the luckless slaves, the supply of criminals had fallen short of their needs, and they had been driven to force a way up to the earth's surface. They had always had some sort of knowledge, some vague tradition, of the existence of an upper world from which they had once come.

Working back as well as we can from our scanty data, we believe that this vast, honeycombed region was laid open to the air in the Permian Age, and probably colonized by a sub-branch of the anthropoid ancestors of mankind in the Miocene. Then some convulsion of the earth's crust imprisoned them, and through long ages they learned to exist and adapt themselves to the strange conditions.

And that's as far as we, plus all the learned scientists in the world, have got in the history of the Trogs. And it's as far as we ever shall get. We shall never know.

The Trogs brought us food and water, as agreed upon, for several days. On the fourth day a big crowd of them poured into the cavern, excited, angry, vociferous.

Two of the leaders pushed to the front and spoke with the king.

Ul-Ulfa's white face went whiter still.

Good News and Bad

IT was an ultimatum that the Trogs had come to present to their king and to ourselves.

"And no wonder the old boy is scared," said Dick. "He's in the soup whichever he does, it seems

to me. And we are in it up to the neck, too."

"What do they say?" asked Hartopp.

"They are tired of waiting," translated Rixon. "They have heard from the top of the Outlet by their tap-signals. As you have heard from our people, when the radio worked, there have been several attempts by our folks to re-take the Outlet, but, lacking a 'disperser,' they have all failed. The Trogs on top have decided to stay there and defend it, and no vessels have tried to go up or down whilst we are here. You see, we are in rather a good position just here—in a dog-in-the-manger-ish sort of way. Wtih our flame pistols we could make short work of any descending 'plane."

"Well, what are they threatening to do about it?" persisted Hartopp. "We can't stop here forever."

"The Old Guard, the dyed-in-the-wool Troglodytes who are not exactly in love with Ul-Ulfa, have given us two days more in which to hand him over and surrender ourselves. If we don't—well, they are going to wipe us out—all of us, including the king himself. They will fill the Outlet with gas from above, and this cave from below. As our dispersing tube went in that bit of work done by your prisoner, along with our engines, we are helpless."

"What does the king say about it? For my part, looking at their fishy faces, I believe they are just trying a big bluff," was Hartopp's reply.

"I'm afraid the Elders, at least, mean business," said Rita. "They have probably another aspirant to the throne ready to step into Ul-Ulfa's shoes. He thinks they will act—if we don't surrender."

"And yet he does not ask us to give him up—I admire the old boy for that," said John Rixon. "He sees that we can't, for our own sake. So he is sending the deputation back and telling them we shall give them our answer at the end of the time. There's really no hope, either for him or for us. I am more than ever sorry, Rita, that you came down here again on this foolish errand."

"Dear old John! Don't worry about me. We have just got to face the worst together as best we can."

It seemed to me, in my gloomy, despairing mind, that in the presence of danger these two were drawing ever nearer and nearer together. Certainly, in John Rixon's state of sickness of soul and body, he needed the comforting, the petting, the companionship, that only a woman could give.

I ought not to have grudged him that little amelioration of the plight he shared with all of us; I am not sure that I did grudge it to him; and yet—and yet—

The two days passed all too quickly, and none too pleasantly. Though we were all companions in adversity, I am sorry to say that our tempers were not what they should have been. They were frayed. We snapped at each other when we were not sullenly silent, or when we were not explaining how this, that, or the other ought to have been done before the expedition was undertaken.

Human nature, I suppose.

We gave our Trog prisoner his freedom, as we had no further need of him, but he preferred to stop and wait upon his king.

He was a loyalist to the backbone.

At such intervals as we could get our set to function properly, we heard fragmentary news from the upper world.

The fight against the Trogs was being waged everywhere with enthusiasm, if with fluctuating success. The enemy had been driven out of Europe, their camp in the Atlas had been destroyed. They had left Australia, but were masters of nearly all South America. Hopkins had been busy in the States, and with the "disperser" guns he had helped them to build, the U. S. airmen had chased the Trogs south of Panama.

The last we heard of Hopkins was that he was with an air squadron operating in Venezuela.

The two days' grace passed off uneventfully, except for the one frustrated attack made upon us by a band of the more dissatisfied Trogs.

They crept up to us during a minimum of the flickering light, dodging from shadow to shadow. Each of them carried a paralysis tube, and their hope was to catch us unawares and reduce us to helplessness.

It was General Hartopp's turn to be on guard, and he admits that he was almost asleep when a sudden rustling, dragging sound near the vessel roused him to activity. His quick revolver shots woke us all, and now we found the lead shields we had brought proved their worth. But for their shelter, their impermeability by the curious, nerve-numbing violet light, our days would indeed have been numbered.

The shields protected us, the attack failed, and the Trogs drew off sullenly, taking their dead and wounded with them.

Let me say here that we never had any inkling of what the Troglodytes did with their dead. Whether they cremated them, or buried them in the deep mines, or desiccated them in chambers filled with poison gas, we never discovered.

So we came to the end of our term of grace. It was still a couple of hours before the actual time limit, but the great cave and its approaches were already filling up with a concourse of armed and excited Trogs. Even to us, it was evident that there were two factions amongst them—one led by the Elders, who cared more for the race than for the mere person of the king; and the other formed of the common herd, who blindly worshipped their sovereign.

"And the king-worshippers, I'm thankful to see, are the bigger lot," said Dick. "Not that it seems to matter much to us, in our fix."

"I'm not sure," said Hartopp, who was crouching over his radio, with ear-phones on. "Just listen to this that's coming through. Can't understand it at all, don't see how he's done it, how he could get here in the time; but I suppose . . . oh, dammit!

"It's Hopkins, the fellow you dropped on in Sydney, speaking. This is what he says: 'Got here and cleared up the whole caboose. Not a Trog breathing up here, not a Trog vessel that ain't smashed. But I'm stuck, waiting for help. Top of the Outlet—and a God-forsaken spot it is. If you are still alive and kicking down at the bottom of that hole, come up slick. Our machine crashed and crocked up. Hopkins calls—Hop-

kins, top of Outlet.' That's what he says, as well as I can put it. And he keeps on calling."

"Cleared the crater, come to help us, and then smashed up himself. Was there ever such rotten luck?" groaned Dick Martin.

Out of the Darkness

"THEN that puts 'finis' to the book of our lives," said John Rixon, calmly, despondently, as one who accepts the worst that Fate can do, and is not unduly grieved. "My chief regret, Rita, is that you are here—when you need not have been here."

Rita did not reply for a few moments. When she looked up, I caught again that bright gleam in her eyes—that gleam of hope—of light ahead.

"And I am glad that I am here, John. Yes, very glad. What blind bats we are! The way of escape is open to us now that there is no danger at the top of the Outlet. What is there to prevent us seizing another Trog vessel—this empty one alongside for choice—and going up?"

"Miss Courtney, you've said it!" cried Hartopp. "We've been down in this inferno till our brains—all of 'em but yours—have gone mouldy! Of course we go up, and the quicker the better."

It was John Rixon's turn to voice objections, to raise difficulties. John Rixon, once the man of iron will, of initiative, of action.

"We have to take the king with us, remember. We have to rely on the loyalty of his people to save us. We have to find out whether the vessel we seize is in working order, if it has enough fuel."

"We shall find all those things out when we get to work—and not before," said Rita, impatiently. "We shall find nothing out if we just sit here and talk. Are we all agreed? Are we all ready? There's no time to waste, and it may be a matter of getting away by the skin of our teeth."

It was! I sometimes dream of that struggle, that frantic grasp of the one chance in a thousand that we took, and, when I wake from that dream, I find myself bathed in perspiration and gasping.

We seized our weapons, our lead shields, and as much of our personal luggage as we could carry, and jumped down from our damaged craft.

This was, perhaps, the most dangerous moment, for if the assembling Trogs had caught us in the open, our end would have been sure. But they were quite unprepared for our move, and before they had recovered from their surprise, we had all gained our new quarters —or nearly all of us.

Hartopp, shepherding the king, urging him along at revolver point, went first. Dick and I followed. John and Rita brought up the rear, with our Trog prisoner following. We told him he need not come, but he followed.

There was an outcry, a rush of angry Trogs, a scuffle, blows, some shots. We who had gained the shelter of the air-vessel's deck, turned to see Rita in the grasp of two squat creatures. John shot one through the heart, and, as he fell, Rita wrenched herself free, got out her flame pistol, and wiped the other out of existence. She grasped our outstretched hands and jumped for safety.

Out of the tail of my eye I saw another Trog levelling his flame pistol. John Rixon saw him at the same moment. We both sprang forward and pulled Rita in.

We should have been too late had not another seen the danger and acted more promptly than we had done.

The Troglodyte prisoner leaped upon her attacker with the swiftness of a tiger's leap. As he leaped, the spurt of searing white radiance rushed from the pistol. The cave was lit by the ghastly glare of the atomic discharge, and when what seemed like darkness followed, our prisoner had ceased to be, had been burned to apparent nothingness.

Rita had saved his life when Hartopp would have made an end of him; he had paid the debt.

Even Self-Sacrifice had we found in that grim underworld. Even there, in that night land of horror, the Spark Divine that is in all things, was working upwards to the light.

A scene of pandemonium followed. The party led by the Elders, uttering grunts of stern command, tried to reach us, to surround us. They used their flame pistols recklessly, and in the fierce glares of radiance that stabbed the semi-gloom, many a common Trog looked his last on the flickering light of his native land.

But the common herd were too numerous, too fanatically loyal, and surged around us in a packed, protective mass. The flame pistols, deadly as they were, had one fatal defect—once discharged, they were useless until they could be filled again, which was a long and dangerous process. With all the knowledge we gained from our brief contact with the Troglodyte world, we did not learn that secret of releasing the atomic energy in a lump of quartz crystal.

Whilst this conflict raged, we were busy inside the air-vessel. There was certainly some radio-fuel in the engine, for it started up at once on closing the switches, but how much we had, how long it would keep going, we had no idea. It was not wise to probe too much behind the lead sheathing that housed the burning substance.

A few trial spurts showed that the lifting screws were in order. We raised the vessel from the floor, and hung in mid-air, throbbing, shaking. The Trogs gathered under and around, grunting, jabbering, pointing.

Ul-Ulfa stood at the side of the deck and looked down on them. He seemed to make a sudden resolution, raised his hand and spoke. Nearly every unit in the crowd bowed in reverence. As well as I can remember, this was what he said:

"People, I go to the upper world, to see it for myself. It may be that the people of the upper air are too strong for us. If that be so, I will make peace with them, lest they destroy us all. Let there be no more war between us till I return."

An answering roar, a babel of cries, of which we could make no sense, broke out. Hartopp pressed all the switches down and the vessel leaped up into the blackness of the great shaft. Our one anxiety now was

whether the power would carry us to the top or not.

Hopkins Tells His Story

STEADILY, slowly, with roaring propellers and grinding mechanism, the vessel bore us upwards through the eerie blackness, upwards through the long, long shaft.

Once the power failed, or a cog slipped, and we sank down with a sickening lurch, clutching at each other in deadly fear; then the vessel began to rise again, and kept on until we reached the top.

Once more we breathed the fresh air of heaven, once more we saw the sun.

As Hartopp maneuvered for position before alighting alongside the wrecked vessel on which several people were clustered, waving their arms and cheering, we, who had so wonderfully escaped from a living death, looked long into each other's eyes.

"Oh, my friend," cried Rita, tears running down her face—tears of joy, of relief—"forgive me! Forgive me for having taken you down there again."

"I'm glad, Rita; glad," said I. "It is I who need forgiveness for trying to hold you back. If we had not saved Dick and John I should never have forgiven myself."

It was with welcome relief that we turned to meet Hopkins and the American naval captain in charge of the wrecked air-vessel. Introductions over, our explanations were quickly made. It was no wonder the officer lifted his neat eyebrows in amazement—our story sounded miraculous, unreal, even to ourselves.

Still, it happened to be true, and there we were, and there was our prisoner, the King of all the Trogs.

Hopkins was bubbling over with enthusiasm and pleasure at meeting us again.

"Say, folk," he cried, wringing our hands vigorously, "it's bully to see you! It was a good thing for me you two ran up against Jonas T. Hopkins in Sydney. It's put me right up amongst the Big Things. It's helped me to forget.

"You are looking at this vessel we were so all-fired clumsy as to smash up? Gee! It gave us a jolt when it dropped on these rocks! Yes, it's a Trog vessel, same pattern as yours."

"I guessed it was, or you wouldn't have been able to clear the Outlet," said John Rixon. "You managed to bring a wireless outfit as well, I see. Expecting help?"

"Any minute. Yes, sirree. No doubt the Big Wigs will want us to tote His Nibs here across to London to negotiate peace terms as soon as we can leave a guard in this abomination of desolation. Lord, what a place! Hundreds of square miles of steaming, rotting, festering jungle, rivers and swamps, and in the middle this patch of torn-up ground like a big shell-hole. And we haven't added to the beauty of it by scattering these dead Trogs around.

"Yes, folk, I've had a busy time since I left England. They'd just sent for you to come over from Paris. They shoved a lot of blueprints into my hands and put me on an air-liner for little old New York. Said I wasn't to worry about the Chink—they weren't bothering about extradition, so long as I made myself scare. It doesn't seem long, but we've done a powerful lot of hustling in the time. The whole American nation, sir, got to work on those plans of yours, and they were making gas-dispersing guns in a dozen places at once, turning 'em out ready for use in less than forty-eight hours.

"We tackled the Trogs first time outside the ruins of Chicago—some ruins, Lord!—where there was a big camp of them. Fifteen airplanes they had there. A lot of our aces went up, heavily armed, and I had a couple of dispersers handy on fast motor lorries.

"I guess those Trogs had the surprise of their lives that day. Only four of 'em troubled to go up to fight us, thinking to polish us all off in no time with a whiff of gas. But our men separated—I had told 'em the lesson of Gibraltar, you bet—and, as fast as their gas shells burst, we dispersed the stuff. Then a few of our anti-aircrafts got to work and winged two of the hostile birds. One of our chaps rammed a third, and the fourth we riddled with machine-gun fire.

"This rattled 'em some, I expect, and the whole covey started up. It was too late. Our fellows had the drop on them, and settled 'em with a rain of bombs at close quarters.

"It was the surprise element that put 'paid' to their account—and that's no detraction from the smart work of the U. S. airmen, either. At the end, one of the Trogs got clear away, and one lame duck fluttered to the ground and was captured.

"We repaired her, tried and experimented till we got the hang of her works, put in a wireless and a couple of good guns, and headed direct for this spot. After getting Bennett's last message, we should have come anyway, even if he we hadn't had urgent orders from headquarters.

"When we arrived and saw a ring of Trog vessels squatting round the top of the shaft and a little cloud of gas floating about in the crater, I can tell you we were feeling rather peeved.

"Surprise again. The beggars thought we were one of their own bunch, and didn't know any better till we were right on top of them and our guns began to talk. Lord! It would have done you good to see the hurry and scurry. But it was no sort of use. We were above them, and they couldn't outfly us. We smashed up the lot, cleared the gas away, and then came down and smashed ourselves. And here we are stuck. We could do no more than radio for help and try to send you an appeal.

"Say, I felt pretty bad. Never thought you'd get out again. Wouldn't get me down there, not if you were to make me a multi-Rockefeller. No. Jonas T. Hopkins will die in the fresh air!"

General Hartopp, who had been busy sending and receiving messages ever since we reached the top, broke in upon his chatter: "We start for London at the earliest possible moment, gentlemen. We take every care of the king *en route*. A fresh air force will be here shortly to hold the Outlet."

We climbed into our vessel again, and began our long flight, rushing north-eastward at the highest speed the Trog vessel was capable of attaining.

Of all the reckless ventures we seemed fated to risk, surely this was the most reckless, the most utterly rash. Consider. We were largely ignorant of the mechanics of the radium engine of our unfamiliar craft. We had no idea how long the supply of power would last. Of course, our route was already known, and aerial and sea convoys would already be on the way to assist us over the thousands of miles of land and sea, but supposing the power failed while we were over the blue water!

We were well out in mid-Atlantic, temporarily out of sight of our out-distanced escort, when John Rixon put our unspoken fear into words.

"It is to be hoped our engine keeps going," he said.

The words were scarcely out of his mouth when the throbbing of the little motor ceased abruptly. Horizontal and vertical propellers alike came to a standstill, and the deck seemed to drop from under our feet. It was like being in a lift going down.

We were falling into the sea, falling like a stone. Not a vessel was visible in the circle of angry waters; not a speck of movement disturbed the blue dome of the sky.

Routing the Troglodytes

"YOU are getting your wish, Mr. Hopkins!" said John Rixon, wearily. "You wanted to die in the fresh air."

"But not in salt water, and not just now," he retorted. "We aren't done with yet. The General is S.O.S.-ing for all he's worth. We have to hang on to the ribs of this contraption as long as she'll float. I'm most worried about His Nibs—he's scared stiff. Look out! Everybody hold on!"

We didn't need telling. We held on grimly enough. Dick and Hartopp got hold of Ul-Ulfa, while John Rixon and myself prepared to help Rita.

Even in that infinitesimal space of time, all the while I was conscious of the uprushing waves and the uprushing wind, bracing myself for the coming moment of shock, even then I raged inwardly against John Rixon.

Why should he be here in such a moment as this? If we were to perish thus, why should he share in the poor consolation of being with Rita at the last? If were were to die, why could we not die together, we two?

To make it worse, I knew that John Rixon was thinking much the same about me—and probably with far greater right. What fools we men are!

And, after all, there was no need for our precious heroics, petty jealousies, and panic fears.

The air-liner that was following caught sight of us as we fell, for she had only just passed out of eyeshot the moment before. She launched the small, swift hydroplane she carried, and we were all picked off safely before the wrecked Trog vessel had time to sink.

That prompt rescue, and the evidence of our different sorts of sea and aircraft, our cool confidence, and the care we took of him, did a lot towards bringing Ul-Ulfa into a reasonable frame of mind. He was obviously impressed with our capabilities, and pleased with our treatment of himself. He was still more impressed when we took him into London and gave him a suite of rooms—well guarded, of course—in the new Hotel Augustus.

The couple of weeks that followed were busy weeks for us. We were all in great demand, apart from our journalistic work. As the only four people in the world who could talk Troggese, we were told to be within easy call of the Augustus, and I was also in constant touch with the electrical experts who were perfecting the "disperser" apparatus.

When we had made a disperser gun small enough to carry on a fighting aeroplane, we felt ready to fight the Trogs on even better terms than we had been doing; and when an American inventor cabled that he had discovered the secret of the paralysis ray, and could equip all our vessels with it, we knew that the war was won, that the nightmare horror that had threatened mankind would soon pass away.

Every day came better and better news from the battle-fronts. Back towards their first great camp in the Amazon forest the Troglodytes were driven. America breathed again, South Africa was in process of reconstruction by the whites.

Our forces now held the top of the Outlet, and with the gas bombs found in the nine Trog vessels we had captured, were quite able to prevent any further onrush. But a number of Trog prisoners whom we had brought to London and confronted with their king, were given messages and orders by him and sent down the shaft.

Messengers were also sent to the Amazon camp, the last stand of the Troglodytes. They had about a hundred prisoners of ours there, and though they had refused to obey their king's command to surrender, our people hesitated to attack them on account of the prisoners.

But when, in desperation, this last handful of foes began raiding again, carrying death and destruction wantonly over a large area, there was nothing to be done but annihilate them at any cost.

I got the story in a letter from Hopkins, dated from Buenos Ayres.

"I've been in at the death, folks. We simply had to clear out that hornets' nest. They had tasted blood and got the killing fever. I guess they took as much notice of their crowned head as a tiger would of a rate collector. It was a ding-dong affair while it lasted, for they were desperate—and there were no fewer than seventeen vessels in their fleet. But we had eight airships, twenty-five bombers and a dozen aerial craft specially fitted with gas-dispersers, and paralysis tubes. Then, of course, we had plenty of our own sort of guns.

"We made that camp look like a volcanic eruption before we finished, and we smashed up every one of those seventeen ships. There was one Trog left alive when we'd done. (You'll be seeing him in London now, I expect.) We were a bit worried about the prisoners they had, but orders are orders. And we needn't have worried. We found they'd all been gassed. . . .

"So that's that. You can take it as fact that there ain't a Trog left above ground except His Nibs or

Royal Highness, and a few others you have collected.

"It's the Trogs underground that worry yours truly just now. Don't see exactly what we are going to do about things. Seems a sort of stalemate. We can hold the Outlet, of course, but there would always be an element of danger. We ain't sure what new deviltries they may hatch out down there. The king seems O.K., but will they go on obeying him?

"Another thing. What about the radium and poison gas ore? And the prisoners? Our folks would like to get a good few lumps of stuff out before we either bottle 'em up or break off negotiations. I've heard whispers—this is strictly private and confidential, mind you—that there are certain parties in God's own country who would pay several millions for a ton of pure radium and a few hundred-weights of ready-prepared radio-engine fuel. (Big Men they are, so it isn't healthy to spill the beans.) Well, now, so long for the moment.

"You might tell Miss Courtney—though I expect it's no blamed use—that I'm still very much a widower, but quite ready to get into harness again. I don't believe there's her equal in this whole wide world. Mr. Max Harding, you're a lucky dog!"

Cryptic, to say the least of it. That he was a victim I knew well enough, but what did he mean by that final remark? Probably nothing, after all, except that he envied me my continued association with Rita. And all the time I was telling myself that, for my own peace of mind, I ought to see less of her.

The very next day I had a telephone call from General Hartopp.

"Come over to War Office at once. We've got to take his Troglodyte Majesty back to his own country. Bring Dick Martin along. I've already rung up Rixon.

Ul-Ulfa's Farewell

WHAT was the reason of this sudden decision? Did it mean another descent into the nether world? I collared Dick, pushed him into a taxi, and asked him what he thought.

"Not surprised at all, old bean. For one thing, His Nibs has had the 'flu' so often that I expect he's lost faith in our medicine men and wants to go back to his own witch-doctors. It was rumored last week that he'd got scarlet fever. Say, Max, they don't want to include Rita in his guard of honor, do they? If they do, it's you and me to say no to that."

"She's the best speaker of Troggese of all the lot of us," said I. "But you haven't told me what you think of this business. Will they want us to go down again, and, if so, what are we to do about it?"

"They'll never get me down again—nor Rita, if I can help it," asserted Dick. "I may not have a ghost of a chance of winning her myself—" He stopped, looked me in the face, and grinned sheepishly. "I've let it out now, have I? Well, I dare say you knew, you lucky dog! Anyhow, as I was saying, I'm not going to let Rita Courtney be sent down there."

"I'm not too flattered at being called a lucky dog," I muttered. "I think I know who ought to be. Eh? Oh, never mind, old pal. At all events, I'm with you. Rita isn't going down into the nether world again if we can help it. We must prevent it at any or all costs."

We got our orders at the War Office without delay. There had been plenty of international confabbing, and everything was settled.

The Trogs had refused to agree to the terms of peace offered. They would not even consider them as long as we held their king a prisoner.

He had volunteered to return, to try to persuade his people to the wiser course.

He would be sent back to the Outlet under suitable escort, which we four, in our various capacities as journalists and interpreters, were invited to join. He would be sent down the shaft in a Trog vessel, manned entirely by Trogs, and within a week would send us an answer confirming or rejecting the terms.

The conditions of peace were harsh, but inflexible.

The Troglodytes must cease all hostilities; they must send up all prisoners; they must pay us a yearly tribute of radium ore; they must lend us their best chemists and engineers and instruct our people in all their discoveries and inventions; their world must be open to periodic visits by safeguarded parties of our people; the top and bottom of the Outlet must be garrisoned and held by us; there must be neither comings nor goings between the two worlds except by special permission of our General War Council.

If the Troglodytes refused these conditions, or agreed and broke their agreement afterwards, our General War Council would close the Outlet after invading their world, disarming them, and bringing up the prisoners.

"It sounds like a gigantic bluff to me," said Rixon, as we came away from the meeting and went to make our arrangements for the following day's start. "I don't see any invasion being successful. Why, the Trogs could retire for hundreds of miles into their honeycomb wilderness, and fill the cave below the Outlet with such a sea of deadly gas that our folk would be snuffed out before they could get the dispersing apparatus to work. I tell you it's sheer bluff."

"Nevertheless our chaps mean business," said Hartopp. "It's all cut and dried. The king himself quite expects it, if he can't bring his squat devil's imps to reason. Suppose Miss Courtney and yourselves will all be coming along? If I weren't married—! She would make a splendid wife for a soldier. But some folks are lucky dogs!"

I was really getting fed up with that inane phrase. I did not even reply to the gallant General. And Rixon, glowering at both of us, was equally dumb.

The return to the upper world, to the fresh air and sunlight, to his normal work, had enabled John Rixon to make a good recovery of health. He was almost his own virile, determined self again, though everyone could see that his quite excusable breakdown rankled. He had not really forgiven himself.

Across a sunny world that breathed in peace once more, we took Ul-Ulfa, the King of the Trogs.

A Troglodyte messenger had been sent down the Outlet to herald his return, and in the cool of an Amazon dawn we saw him step aboard one of his own vessels, manned by a crew of his own people.

When it came to bidding him farewell, after all the

official bits were over, we found ourselves strangely moved.

I had never imagined that there would be any pangs of regret at parting with this squat figure in coarse garments; this white, sickly-faced creature, who wore disfiguring dark goggles and shivered at the least breeze; this being who was king of the brutes; who had devastated so much of our world.

Yet it was with real regret that we saw him go. He had always been reasonable, far in advance of his subjects, quick to see, to learn, to appreciate. Since his capture he had come to rely for everything upon us—upon the only four humans who could talk to him. A bond of pity, of sympathy, even of liking, scarcely realized until this moment, had grown around us.

With his clammy, misshapen hands he gripped ours in the way he had learned, parting with us gravely, quietly, one by one. Even he, I fancied, held Rita's hands longer than he held any of ours. Was he thinking of Ulla, I wonder—Llla, who had been stolen from him by luckless Ulf!

He stood up, as the engine began to throb and spoke.

"People of the Upper Air," he said—I am translating it as nearly as possible into English—"People of the Upper Air, I go back to my defeated race. I go to make peace between your people and my people. I go to tell them that they cannot stand against you. I go to tell them of your numbers, of your power, of your determination, of the kindness you have shown to me, of the diseases that will come upon them in this upper world of blazing light and piercing cold.

"It may be that the people will not listen to me—that the stubborn Elder Councillors will have poisoned their minds against me. I will return within the seven days, with peace, if it be possible. It may be that I shall not return. It may be that I shall speak in vain, that already another king may rule over my world. If I do not return with the time, know that I have failed, that I may have died the death.

"People of the Upper Air, farewell!"

The vessel rose, hovered, found position, and sank out of sight into the yawning blackness of the Great Shaft.

The Trust Raid

THERE was now nothing to do but wait.

Not one of us wished to return till the decision was made known, so we stayed and investigated South America. Our experiences were very enjoyable, as, in a Troglodyte vessel, we soared over the Andes and over the boundless wastes of the Amazon hinterland. We visited the Cuzco, that mystery city of the ancient Incas, and marveled afresh at the daring of the Spanish pioneers, who penetrated the country, a mere handful of men, and destroyed one of the most promising civilizations the world has ever seen.

We saw the ruins of the old Inca temples and towns, the remnants of their wonderful roads, of their marvelous industry. Where now a few slave-peons scratch a precarious living from a bare land, thousands of Indians fared well on the produce of their irrigated soil, their terraced hills. The Spaniards found Peru an empire run on socialist lines, an empire in which every man's living was guaranteed from birth to death, an empire where poverty was unknown; they left it to become capitalistic, republican, a land of contrasts.

But, of course, this has nothing to do with my story. Turn up the files of the *Daily Scoop* if you want to know more about our aerial holiday!

We were at Lima when the disquieting news came that made us pack up hurriedly and start back for the Outlet.

It was a brief radiogram from Hopkins.

"Better come over if you want another scoop. People I mentioned after radium. Sort of raid. Hustle!"

We got more news on our way back, but it was all very nebulous. A party of business men, with secretaries and hangers-on, had arrived at the Outlet camp in a big air-liner they had chartered.

Rumors were flying about that they intended trying to get down into the underworld, that they had formed a syndicate to exploit the radium ore they hoped to bring up—sensational rumours—but the party affected to laugh at such ideas.

They were just sightseers, they said, with a special permit from Washington. No need for anybody to worry.

"All the same," said Rixon, I don't like the look of things. They must have a strong pull at headquarters to be allowed here at all. Some of those Big Business Syndicates won't stop at anything. Look at the chaps back of the bootleggers. It's all a question of dollars with them. They would get more power and profit out of half a ton of radium than out of all the rotten alcohol they've sold in defiance of the Liquor Laws."

"Still, I don't see how they are going to 'get away with it' in face of the international force holding the Outlet," said Dick Martin. "They won't have a chance to get down, and if they get down, I'm sure we shall nab them when they come up. Dollars can do a lot, I know, but somehow I don't see the World's General Council knuckling under to a gang of financial buscaneers."

"Don't be too sure, Dicky," put in Rita. "The exploits of the rum runners in defiance of two Governments ought to prepare us for anything. But we shall soon see for ourselves."

We arrived at the top of the Outlet—that strange area of brown desolation in the steaming green sea of the Amazon jungle—soon after, but we did not see what happened.

We were just too late, we heard.

Hopkins met us as we stepped to the ground. His face was as long as a fiddle.

"They've done it, folks! Done it, right under our noses. Gone down after the loot. And they mean to get it too. I tell you I'm ashamed—I, Jonas T. Hopkins, an American citizen — I'm ashamed of our country, though there's one Scottie and one Dago in the bunch."

"But did they manage it?" I asked. "They came in an air-liner. That wouldn't be any use in the shaft."

"They were pretty smart, I'll allow," replied Hopkins, a note of grudging admiration in his voice.

"They were a biggish party, and the top men, the ringleaders, are here yet, going around shedding crocodile tears in floods. They never expected anything of the sort, of course; all the rumors that had got about were just hot air, pulling our legs, and so on. I guess they are waiting to see what eventuates. If the raid comes off, you'll see this lot of surprised saints as the principal stockholder in the Great Radium Trust. If the thing fails—well, of course, they'll calmly disown their poor tools. Mind you, they are open and above-board. They've told the Press that they are disgusted with Governmental leniency and delay; they think the Trogs ought to be exterminated and the underworld thrown open to commercial exploitation."

"But how did they get down?"

"Took us absolutely by surprise, late last night. We never expected their move. Whilst the big-bugs were having a talkee-talkee in the General's mess-tent, the active members seized one of the Trog vessels and just went. One of 'em, it appears, had experimented in the controls of a Trog 'plane captured in Mexico. They're a reckless crush—some of 'em been in the bootlegging business, and others very talented crooks and gunmen.

"Of course, directly we saw the 'plane in the air we guessed what was wrong, but it was too late then. We called to them to stop, but they laughed and shouted that they were going down to see Hell for themselves—'going to make it hot for the devils!' one of them yelled—and anybody who tried to stop them would get hurt. Somehow, they had smuggled a machine gun aboard. As I remarked, we were all so paralyzed, so absolutely taken aback, that we just did nothing till it was too late. By the time we had gathered our addled wits, they had dropped out of sight down the shaft.

"That's eighteen hours ago, and we've seen nothing, heard nothing, of them."

"What is your opinion General?" asked Rita, as Hartopp came over to greet us.

"Orders from the War Council are to wait another day before taking action. You see, one of the terms of the armistice was that we were not to make any use of the shaft, or to interfere with the Troglodytes in any way, until the expiration of the week's grace we had given the king.

"This foolish raid may upset everything down there. It's damnable."

Hartopp was bitterly aggrieved.

"And if you hear nothing in twenty-four hours?"

"Then I've got to send somebody down to learn something," was his curt reply. "Somebody who can talk to the Trogs."

We four who shared that dangerous accomplishment glanced uneasily at each other.

John Rixon Decides

TO go down into that awful hole again, to re-visit that horrible land of gloom!

"I thought I was brave," said Rita, "but I can't, I can't face that ghastly world again."

"My dear lady," said the General, "I can assure you that you need have no fear. I will see to that. Nor do I think it fair to call upon Mr. Martin, after the imprisonments he suffered there. The choice is really between Mr. Harding and Mr. Rixon. There may be no need to send either of them, of course; but if the need arises I shall leave it to them to decide."

I must confess that this very diplomatic speech gave me a queer "sinking" sensation in the internal regions of my anatomy. It was too patently indicative; it narrowed the choice down so obviously: it pointed so clearly to me.

Rita and Dick ruled out, there was really no choice left. After John Rixon's noble work for the prisoners—work that had made him a wreck and had left its mark on him still—no one could possibly ask him to imperil himself again, to re-visit those harrowing scenes.

No; the choice was no choice at all. The finger of fate pointed to Max Harding. And Max Harding didn't like the prospect.

There was even more than that behind Hartopp's clever shuffling out of responsibility. He knew that he had no chance with Rita himself, or only a poor chance; he saw the possibility of eliminating one of his most dangerous rivals; he would not compromise himself in her eyes by deliberately appearing to get one of us out of the way.

I may be wrong in imputing this to the gallant soldier, but instinct is a pretty sure guide in these matters after all.

Anyhow, if General Hartopp and any other man had been the only obstacle between Rita Courtney and myself, if I had been assured that with them out of the way she were mine for the asking, I would cheerfully have sent them to the South Pole or urged them to climb Mount Everest.

You see, I'm brutally candid! I've put down just what I felt at the moment.

Of course I said there need be no trouble. John Rixon could not be asked, and therefore I held myself at the General's orders, should my services be needed.

Rita made an impulsive movement, bit her lip as though checking a hasty word, and remained silent.

"Very good of you, Harding," began the General. "I always prefer volunteers for the V.C. jobs."

"Just a moment," said John Rixon, coolly. "As Mr. Harding's senior, I've a word to put in."

Again Rita was about to speak, and again she checked the impulse.

"I've something very definite to say," Rixon went on. "If anyone must go down, I will go. There's no use discussing it. I am quite the best Troggese speaker; I have the longest and most useful experience of the Troglodytes and their ways. Please regard it as settled."

"Don't quarrel over it and force a decision upon me," said Hartopp, clearly annoyed. "That's all I ask. In any case, I shall call upon one of you to-morrow, if we have by then received no news of the raiders."

I protested, Dick very half-heartedly volunteered but John Rixon was firm.

And when twenty-four hours had passed without a

sign from the nether world, it was John Rixon who stepped aboard a Trog vessel, together with a Trog prisoner to help work it.

He did not seem at all troubled or worried.

"I daresay I shall bring them up—the whole thing will have fizzled out. They will have seen enough to make them give up the mad idea, and they'll be glad to be rescued. Well, good-bye for the present. See you again soon."

He waived his hand cheerfully as the vessel sank out of sight.

For us, left above, there was nothing to do but wait and watch.

The news of the Trust Raid had flashed around the world, and we lived those two long days of suspense in constant wireless touch with the General Council. The Big Business men, who, we were morally sure had organized the raid, were put under arrest, but they did not seem greatly troubled.

"It's as I told you," said Hopkins. "They are really injured innocents. They'll be sure to have left nothing in writing anywhere, and there will be no witnesses to the verbal instructions given to the poor boobs who went down to pull the chestnuts out of the fire. You will see the plutocrats are O.K."

To anticipate, I may as well state here that Hopkins was right. No evidence connecting our financier prisoners with the raid was ever discovered—at least, no such evidence was ever made public or reported in the Press—and they were eventually set at liberty.

Two days after his descent, a vessel was heard coming up the shaft, and when it reached the top, John Rixon stepped out.

His clothes were soiled, his hands were grimy, a hideous Troglodyte gas mask hung from his neck. His face was haggard.

A New Menace

WE crowded round him as he stepped to the ground. With a weary gesture he motioned us away. "Give me a bit of time," he said. "A wash and brush up, and that sort of thing. I'll talk later. I can tell you this: the raiders are wiped out."

We got the full story from him in the General's mess-tent that evening.

"Those crooks have not only lost their lives: they have endangered the Peace Treaty; they may cost Ul-Ulfa his life. They have spoilt everything with their rapacious commercial greed," he said. "When I got down, the whole underworld was in an uproar. It was like dropping into a wasps' nest. Everywhere the rocks resounded with signal tappings and the cave-tunnels roared with the passage of airliners. I was surrounded and seized at once by a lot of very angry Trogs. I thought I was done for.

"Fortunately, the king happened along in the nick of time. He had a lot of trouble with his subjects, but managed to persuade them at last that I was merely a harmless, useful messenger. Quite a lot of them would cheerfully have shot me out of hand.

"When things had calmed down a little, I got news of the raiders. It appeared that they had come safely down the shaft and taken the Trogs completely by surprise. Evidently some member of the party had a keen nose for details and a retentive mind, for they seemed to know their way about. Read up all our adventures carefully I expect.

"They flew across the great cavity and along the passage leading to the underground sea. There they had a snappy fight with a Trog 'plane and sank it; then they flew over the poison gas works, dropping a few high explosive shells, and eventually reached the prisoners' camp.

"By this time the whole Trog world was thoroughly roused, and naturally, they were very indignant at what they could only regard as a breach of faith on our part.

"They attacked the raiders in force, but were kept at bay for a long time by the dispersal of the gas they used. The raiders, who had brought some machine-guns along, armed a number of prisoners, and with these made an attempt to reach the low levels of the radium mines. I'm not very clear how far they went, but one thing is certain—not a man of that particular party returned.

"Then, realizing hastily that they had simply gone into a trap, the remnant of the raiders made a desperate endeavor to return.

"It was, of course, utterly hopeless.

"They managed to cross the sea again, but they never reached the bottom of the Outlet. When they were in the narrowest part of a tortuous tunnel-way, the phosphorescent light was quenched. In the pitch darkness they ran aground, crashing into the rock wall, and there a wave of poison gas caught them, shrivelling them to dried mummies. I was taken to the spot and saw the wreck and the bodies."

"Had they tried to bring out any of the prisoners?" asked Rita.

"There wasn't a dead prisoner amongst them. They had tried to save themselves—they left the prisoners to their fate. And from what I heard, there are still some three hundred unhappy souls down there."

"Can't we do anything to help?" Dick asked.

"I'm really afraid that all we can do for them is—just nothing," was Rixon's reply. "Nothing, that is, except hope for the making of a Peace Treaty. Ul-Ulfa is honestly doing his best for a settlement, but this raid has strengthened the hands of the Elders considerably.

"From merely regarding our humanity as a profitable slave supply, the militant Trogs are now actively and malignantly hostile. They see their dream of conquest and survival melting away; they see the deadly mines on which their power depends falling into disuse for want of labor; they fear the diseases of our world if they should be compelled to go on fighting us, or we should be allowed to travel down there.

"Speaking without being a medical authority, I should say the king himself will die of consumption."

"Then what shall we report to headquarters? Are the Trogs likely to agree to our terms?"

General Hartopp spoke sharply. He sensed, as we had done before, when listening to John Rixon telling bad news, that there was more behind, that the worst had not been mentioned.

"The king has asked for another day's grace," was Rixon's answer.

"As a matter of fact, he sent me up in a hurry to obtain that respite, as well as to get me out of danger. I only escaped by a miracle. The Trogs are in open revolt, fighting is going on amongst them, and poison gas, flame discharges and nerve paralyzing rays are making the Outlet Cave very unhealthy. Ul-Ulfa has got his back to the wall, and personally I think he is a doomed man. I think the Elders will win, that there will be no Peace Treaty."

"And then what?" the General snapped. "Out with it man!"

John Rixon had a slightly bewildered air. The gloom and horror of the underworld had shaken him more than he cared to admit.

"I can't tell what we may expect then," he said at length. "Even Ul Ulfa, trying to warn me, was indefinite, nebulous. There were rumors and hints passing along, grunted from Trog to Trog, rapped out on the walls. If the Elders won, they would 'make an end' of all trouble. They would 'undo the deed of the outbreak.' They had power at command, these terrible wise men of the race, such as the people did not understand. There were secrets in the deep earth as yet known but to few. And these powers and these secrets would be used mercilessly. The Troglodytes would never be subjects to an alien race.

"Finally Ul-Ulfa told me that it would be well for us to leave the Outlet—to return home."

"Then you think there's some sort of danger here?" asked Rita thoughtfully.

"I'm sure of it, and yet I can't give it a name," was Rixon's gloomy response. "I am even more sure of this: we must make our quarters on board the Trog aeroplane, so as to be ready for instant flight. We had better go aboard at once. You had better get all your men on their various craft, too, General."

"We shall remain in camp till the time of grace expires," said Hartopp, somewhat stiffly. " I don't see what can possibly harm us here."

Hartopp was a decent man, but he had a Brass Hat mentality.

A World Forever Sealed

IMPRESSED by Rixon's vague warning, perhaps impressed the more by reason of its vagueness, we four journalists took up our abode on the Troglodyte vessel which Hartopp placed at our disposal, where Hopkins joined us later.

A couple of hours before the armistice was due to expire, driven by an increasing uneasiness, we took the vessel into the air and cruised about back and forth across the top of the Shaft. It was a clear sun-drenched day, humidly hot at earth level, refreshingly cool in the higher atmosphere. The smoke of the camp fires and mosquito smudges curled lazily in the air. The great, brown, broken expanse of the Outlet, dotted with its white tents and the twenty grounded air-ships that had brought the garrison of nearly two hundred picked men to the spot, lay beneath us like a huge deep basin.

"A picture of rest and peace," Rita was saying. "And yet what a picture of past force! What a tremendous volume of energy must have been released to tear out these square miles of raw earth from the thick forest! And then the work of boring the shaft, miles up from the nether world."

"Boring the Shaft was easy in one way," said Rixon. I heard about that. It was done with a flame discharge, such as they use in their once-only pistols. A great stream of released atomic force—a force that dissolves all solids, on contact, into invisible vapour—was directed upwards through the rocks and formed the long, straight, round shaft to within a certain distance of the top. For the final burst, an explosive, more violent than anything we know, had to be used, and then the flame discharge was used again to clear the Shaft of debris."

"Then the Trogs could break out anywhere they darn well please! Oh, Lord," groaned Hopkins.

"Not exactly," was Rixon's reassuring reply. "To begin with, the cave below the Outlet happens to be the very highest point, the nearest to the surface, in all their world. And in the second place, the flame discharge, the atomic energy used, is so arduous to make, so difficult to handle on such an enormous scale, that it is doubtful whether they could accumulate sufficient power for a similar feat in a hundred years."

"Ul-Ulfa told me himself that the great project had been the work of many generations of patient preparation. About the supply of explosive he was not sure."

"They have plenty of gas, at any rate!" cried Dick, suddenly. "Look at the top of the Outlet! Thought I was mistaken at first, but I wasn't. Coming up thicker now. It will be smoking like a chimney directly."

Volumes of dark vapor were now pouring from the core of the Outlet, spreading out in all directions, evidently forced up by strong pressure from below.

We immediately trained our dispersing rays upon it, thinning it, destroying it, but still it poured out in rolling clouds, thicker, faster, seemingly inexhaustible. Faster than we could annihilate it, that dark cloud grew, spreading out from the centre like a fungus growth.

We signalled the garrison, and when their dispersers got to work, we managed to keep the deadly stuff within reasonable limits. Still it poured out continuously. It needed all our energies, all our resources, to hold it in check.

"Hartopp will have to evacuate the position after all, I'm afraid," said Rixon. "Pity he has turned so stubborn. I dare say he feels that there has been quite enough civilian advice and interference in this affair already. Ah! It's thinning at last! It is getting——"

He never finished that sentence.

The catastrophe burst upon us with terrifying abruptness, with appalling violence.

A torch of fire, fierce and glowing even in the sunlight, shot from the top of the Outlet. Had we been directly in its path, our vessel and ourselves would have vanished like a speck of dust in a candle flame.

It sank, then burst out again, and just as Rixon pressed the lever that sent our vessel upwards in a

frantic leap for safety, the whole vast surface of the oasis appeared to rise in the air. It rushed up to us, a heaving, straining, conical mountain, stretching out greedy sprays of matter, fountains of soil, clutching fingers of hissing flame to seize us, to overwhelm us, to drag us down.

It was as though the earth, flaming and smoking, had burst open.

The vast area of upheaval sank back as swiftly as it had arisen. The terrible roar of the explosive jarred every atom of the air, shook every plate and bolt on our vessel, tortured our ear-drums into a silence of exquisite pain.

Of the camp and the air-ships, of General Hartopp and his garrison, not a trace was left amongst the smoking area of desolation.

Then the dust cloud smothered us, fast as we were rising, and the sun glowed dimly red through the hot and gritty swirls of pungent vapor.

"Another few minutes and we should be out of this," I said, choking and coughing. Even as I spoke, the lifting screws stopped, the engine ceased its throbbing beat.

The vessel began to fall. We were dropping through that dense sea of dust into that basin of death where the ruptured earth smoked and reeked with poison fumes.

The Bitter Hour

WE had no time to talk, precious little time to act. We hastily put on our masks and braced ourselves to meet the shock of the coming crash. I do not think one of us expected to live many moments.

Our sudden upward leap at the instant of the great explosion, had put an undue strain on the engine, and the concussion of the upheaval had been the finishing touch. The main gear had broken, piercing the lead sheathing, and through the rent, the radio-energy had poured, eating a great hole in the vessel's side.

We braced ourselves for the inevitable end, but to our surprise, we came to rest safely. Shaken, tumbled, bruised, but safe. The explosion had literally pulverised a great area of earth, piling it in soft heaps that were still slipping and slithering to a common level. Upon one of these heaps we fell, the vessel burying itself and us.

It was hot, uncomfortable, frightening, but we were alive, unhurt. We scrambled out, cleared a part of the ship's deck, and looked about us.

"Might have been worse, partners," said Hopkins, cheerfully. "We ought to have known we should light on something cushiony. We shall all have to die in our beds of old age—no other way of finishing us! Poor old Hartopp! If he hadn't been so all-fired mulish. A right good guy he was too, outside of his red-tape. Now for the wireless. If that's in order, all we have to do is to send out an S.O.S. and wait for relief."

"I fancy we can take off these sickly masks now," said Rita. "The wind is blowing the dust and smoke away. That's better. What a scene! What a chaos! I should think the force of that upheaval must have been felt for hundreds of miles, and picked up by all the seismographic stations in the world."

(As a matter of fact that was so. The concussion was registered all over the globe, and the movements of the recording stylus on the drums were only paralleled by the hitherto mysterious earth tremor of September 19, 1936. That, as we now know, was caused by the original outbreak of the Trogs.)

"I think, said John Rixon, trying hard to keep all trace of emotion out of his voice, "that we can safely say the Troglodyte menace is at an end. This explosion, which has destroyed the Outlet shaft and sealed them up in their gloomy world for ever, means that the Elders have triumphed over the king. In their fierce rage against us, they have preferred to be forever cut off from the upper air. For they will never make another sally; of that I'm convinced."

"And they know it would be hopeless, for we should be ready for them and could fight them on equal terms," said Dick. "But can't we ever get down? Are the prisoners to be left there, to be worked to death by the Trogs?"

Rixon nodded gloomily.

"We can't help them. Not all our scientific skill could bore a shaft one tenth of that distance down. No; we have seen the last of the Troglodytes, the last of their world. In my opinion, long before they have prepared sufficient radio-energy to cut out the shaft again, they will have perished. The prisoners will soon be used up, the disease germs that have been carried down there will spread rapidly.

"It sounds archaic to suggest it now, but I really and truly believe that the Troglodytes will die because of their wrongdoing. Their sin has found them out . . . . Now, what about ourselves?"

"The wireless seems to function after a fashion," said Dick. "It was fortunate we installed a set on every captured vessel. I hope they come for us soon. I'm tired of South America; Home for me."

Well, we were picked up the next day by an air-liner, and turned our faces homewards.

If we had been important, notorious, lionized before, we were now painfully popular. As journalists, we ought to have been having the time of our lives, but our experiences had shaken us all, and there is such a thing as having a surfeit of success.

The General Council dealt most handsomely with me in the matter of my invention. In fact, all of us, including Jonas P. Hopkins, received very generous treatment from a grateful world.

But there is really no need to go into all those details. They did not vitally interest me. I accepted the kudos and the cash gladly enough, of course, but I did not look upon them as my reward.

My real reward, the real joy that alone could make my nightmare experiences seem really worth while, was something quite different from financial success or worldly fame.

So, with a flower in my buttonhole, I sallied forth to see Rita at her dainty little flat one gorgeous Sunday afternoon; for we still lingered in London; we had

earned our holiday. My way lay across the Green Park. Nearly at the further gate I saw a familiar figure ahead, and, quickening my pace, overtook John Rixon.

He started, seemed uneasy, walked briskly on.

"Sorry to scoot off, Harding. Fact is, I'm going to see Rita. Had a note from her last night. I know how you feel, so I can't ask you for congrats, if all goes well. Don't let this come between us, though, after what we've all shared together."

We shook hands, he hurried off, and I dropped into a seat. I sat there a full hour, the blackest and most bitter hour of all my life.

I Learn the Truth at Last

I SAT there in the gay sunshine, a stricken man. I felt as though I had been clubbed into a sort of sensitive insensibility.

Of course, I ought to have known; I should have expected this. Had I not seen John and Rita together often enough? Had I not had sufficient warning? Should I not have been better occupied writing the story of our adventures or experimenting in my workshop, than sitting in the Green Park like a moon-struck loon?

We are not yet so far removed from the primal beasts from whom we have inherited our clumsy bodies. The ape and tiger are strong in us yet. Convention, habit, the sense of futility, kept me sitting there inactive, but in the heart of me I raged with a fierce passion; in my thoughts I murdered John Rixon over and over again.

Somebody spoke my name, and John Rixon stood before me. In some way he had changed within the hour, and yet his face was calm, impassive.

"I've a message for you, Harding," he said. "Rita wishes to see you at once; she insists on seeing you."

"I don't know that I will go," said I, sullenly. "You can tell me yourself, can't you?"

John Rixon hesitated, opened his mouth, shut it again with a snap. I was turning away when he seized my arm in a fierce grasp.

"Harding, you will go to her! She wishes it. She made me promise to send you. She has something to say to you—something that must be said. Don't be a fool, man!"

He spoke harshly, dominantly; his will was stronger than mine.

"All right," I said, ungraciously. "As you both make such a point of it, I'll go. Though, for the life of me, I don't see the sense of being so mysterious. Why not blurt it out yourself, and wait for the hypocritical compliments I should have to throw at you?"

John Rixon was about to reply—and once more he choked back whatever it was he would have said. He smiled a twisted sort of smile, turned on his heel without a word, and strode off down the sunny path.

* * * * *

Rita rose to greet me with a grace of charm and manner that no other woman I have known, possesses.

"I shouldn't have come," I said, "if Rixon hadn't been so insistent that you wished it. I suppose I have to congratulate him and wish you every happiness?

"Poor old John," said Rita, pensively, "I knew he would be coming to see me soon, so I sent for him, and we faced the facts—faced them as a modern man and woman should.

"John took it very well. He has the finest, noblest character of all the men I know. My happiness, he said—and he meant it—was his chief consideration. It hurt me, hurt me horribly, to tell him the truth."

Was I hearing aright?

"You mean——?"

"I mean, dear Max, that I had to hurt poor John. I told him that I admired him, respected him, even loved him in a way, but that I loved someone else such a lot more, and in such a different way!"

"Then—Rita—dearest. Rita—you sent for me to tell me this?

"Because you wouldn't come and ask me, you old stupid! Couldn't you see that good old John was so much of a friend, of a pal, that he could never be anything else? Did you ever hear of Eyes and No Eyes? Did—did—.

"And yet," said I, mockingly, "I am stupid, slow, and shortsighted, whilst John Rixon has the finest, noblest character of all the men you know."

"But then, Max, I don't love you for your character. You are very ordinary and full of faults. I love you just because you are you!"

The world has seemed a fairer place and life has been well worth living since Rita Courtney shared her destiny with mine. From the beginning it must have been decreed that we should come together, we two; and if it be true that life is eternal, that there is no death, then we two shall assuredly go forward—always together.

THE END

WE have published many Four Dimensional stories, both in the Quarterly and the Monthly, but we unhesitatingly state, that the present story is, without exception, the best one we have ever published along these lines.

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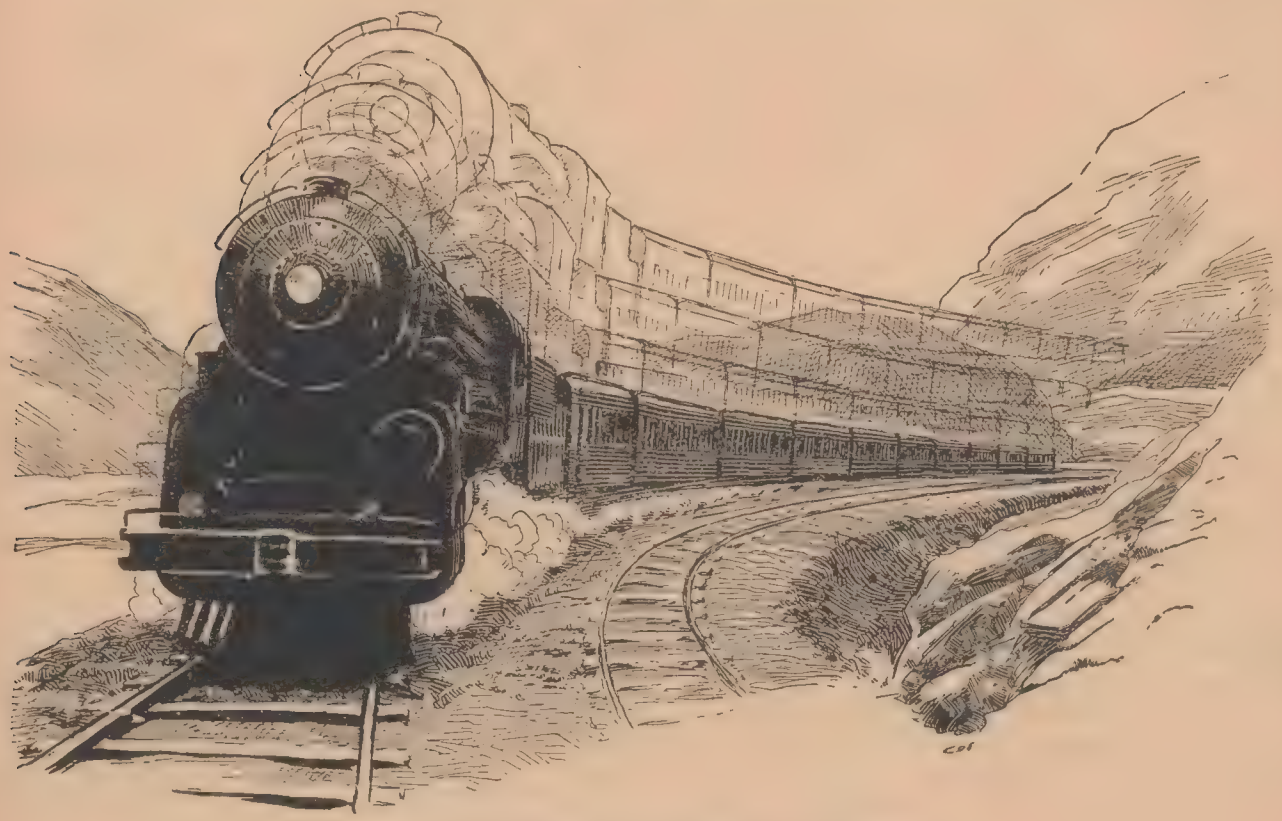
The FIFTH DIMENSION

By Clare Winger Harris

Author of: "The Miracle of the Lily," and "The Menace of Mars."



"Ellen, it was the 8:15, and I have been on it in the other cycles of time. I know it now."

I

"WHY, this has happened before!" I cried as I poured my husband a third cup of coffee.

John laid down the morning paper and shrieked with laughter.

"I'll say it has, and it's liable to happen again tomorrow morning! Did you ever know me to drink fewer than three cups of coffee at breakfast, Ellen?"

"Oh, you don't know what I mean," I responded, a trifle irritably. "I have reference to that feeling that we all have occasionally; that the identical set of circumstances that surround us has existed before in some remote eon of time."

"Fiddlesticks!" ejaculated John as he set down his empty coffee cup and folded his napkin. "I'm going to get my car started, as it takes so long these cold mornings."

In which unsympathetic mood he donned hat and overcoat and disappeared through the kitchen door. A second later his head was thrust through the reopened door, and a jovial smile spread over his features.

"Say, Ellen, it strikes me as I go out to get the old bus, that this has happened before," he called back to me.

"Something else will strike you," I cried playfully picking up an empty cup.

He dodged in mock consternation, then his face grew earnest.

"But seriously, my dear girl," he said, "I hope you aren't getting to believe in all that rot about soul trans-

WHAT makes a premonition? It seems to be a proven fact that some people, some time, have a feeling of dread of an event about to occur, which they, themselves, cannot explain.

Very frequently, also, it happens that one has the impression that some time in the dim past, there was a similar occurrence. It happens to many of us when we visit a strange place that we positively know we have never seen before or have never been near. Yet, we feel that we know it quite intimately, and there is something about it that makes it quite familiar to us.

What brings all this about? What is the answer to those most puzzling phenomena?

Our well-known author advances an ingenious theory on the subject in the present story.

migration. Surely you don't think your personality has been previously decked in other corporeal trappings, do you?"

"No," I replied, "I do not believe that. I have always been myself, and you will always be yourself (stubborn as ever)! My explanation of the oft repeated phenomenon that my life has been lived before exactly as I live it now, lies solely in the theory that time which is the fourth dimension is, like space, curved, and travels in great cycles. You cannot conceive of either the end of space or time. The law of the universe as illustrated by the movements of the stars and planets and the endless motion of the molecules and atoms and the whirling of the electrons, proves that orbital motion is a cosmic law and that all things return eventually to their starting point. And so, in the vast cycles of time and space, we repeat our existence upon this earth, and I claim that occasionally a fleeting memory of previous cycles thrusts itself into our consciousness."

"Too deep for me," said John with a shrug. "I must get down to the office, and by the way, an apple pie for dinner tonight would be greatly appreciated! I haven't had any for a long time."

"Do you like my apple pies, John?" I asked smiling.

"Do I? You are an expert at it. I suppose," he added as he all but disappeared through the crack of the door as it stood slightly ajar, "the infinite number of times that you have baked apple pies in previous cycles of existence has made you adept in that line!"

The door closed and he was gone.

Dear John! Of course he understood the theory as well as I did, but he was forced out among associates in the business world and it was essential that his mind be continually occupied with the practical affairs of life. Dreamers might be vouchsafed glimpses of the truth, but did such visions always prove beneficial? There was no doubting that John was a greater success in life than I, whether he grasped the significance of certain cosmic truths or not!

"After all," I mused, "the difference between the great and the small, the infinite and the finite, right and wrong, good and evil, is sometimes one of degree and not of quality. The most difficult is simple if we follow the rules. The people, who make a muddle of their lives, have deliberately, though unknowingly, chosen the harder way. They are law-breakers, not necessarily in our legal sense, but they are transgressors of Universal Law. Had they simply worked in harmony with the Law, success would have come easily."

"I have not always worked in harmony with the Law," I thought. "None of us have. Do I, now in this cycle of time, possess the ability to change errors performed in previous eons, or am I a mere puppet, destined to a certain definite course of action throughout eternity? Was Henley right or wrong when he wrote, 'I am the master of my fate, the captain of my soul'?"

I believed in the cycle theory of time, and yet in it I saw no hope for changing the errors of the past. My theory was a death-blow to progress and evolution!

II

I HAD just slipped my last pie into the oven and glanced casually out of the kitchen window when I spied my neighbor, Mrs. Maxwell, on her cinder path between her house and the garage. Suddenly I had the same sensation that I had experienced at breakfast, "This *has* happened before. I *know* it."

Then, like a flash, before a seeming darkness obliterated my fleeting memory, came the warning to my consciousness that Mrs. Maxwell ought not to enter her garage. I took a step toward the door with the intention of calling to Mrs. Maxwell. There was plenty of time; the path was long and she was not a third of the way to the garage. I watched her, my heart thumping wildly. She had stopped to pick up a scrap of paper. I took another step toward the door, then paused.

"Oh, what's the use," I argued, "she'd think I was crazy to run out there and attempt to keep her from her errand to her garage. I wonder why I have had two sensations of this memory enigma today! Often they are weeks, even months, apart."

Resolutely I turned and left the kitchen, intending to finish my remaining housework. I reached the first landing of the stairs when the sound of an explosion that rocked the house to its foundation, caused me to start in wild-eyed terror. In a panic of fearful premonition I rushed to a south window. The Maxwell garage was a mass of roaring flames!

"It is fate, fate," I groaned in my anguish. "There is no hope! We mortals cannot escape. The cycles of time like the wheels of the ancient Juggernaut ruthlessly grind us to our destruction and *there is no hope!*"

It seemed that for months after Mrs. Maxwell's funeral I could not rise above a sense of despondency. A hopelessness was ever present in my consciousness, and nothing I did seemed worth the effort. Finally realizing that my present mental state must not continue, I plunged into domestic and social duties with a vim that was most unusual for me.

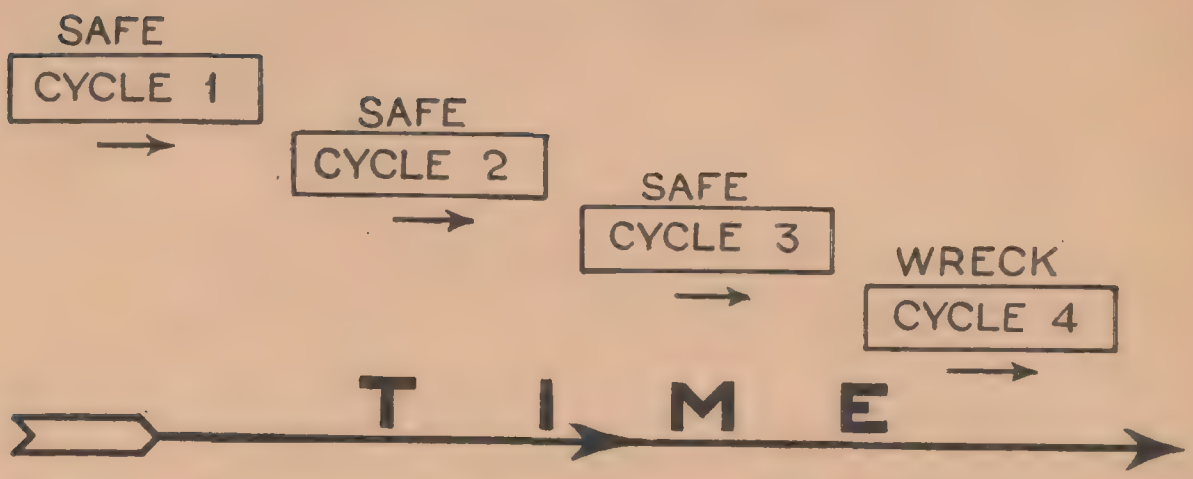
Not once during many months following the Maxwell tragedy had I experienced a single recurrence of my unaccountable memory flashes. Then one day the sensation returned.

III

JOHN was ready to make a business trip to the south and had purchased his railroad ticket early in the afternoon. The train was scheduled to leave town at 8:15 P. M. The supper dishes had just been cleared away and John had hurried upstairs to pack his grip, when the feeling that this had all happened before came upon me, more realistically than I had ever before experienced it, and this time it was accompanied by a premonition of the same nature as that which had warned me of Mrs. Maxwell's fatal trip to her garage.

I lost no time in hurrying up to John's room, where I found him sorting over the things to take with him on his trip.

"John, don't go this evening," I said, trying to keep my voice steady. "There is a morning train at 11:53.



Can't you take that instead of going tonight?"

My husband carefully tucked his hair brush into his satchel, and for a moment deigned me no reply.

"I'm afraid to have you go tonight, John," I continued. "I've had a—a—sort of warning. You know what I mean."

John closed and locked his grip. "Are you afraid here alone?" he asked, after what seemed an interminable silence.

"No. It's not for myself that I fear danger, but for you. Won't you defer your trip?" I persisted.

"Now see here, Ellen," John responded with a show of irritation, "I've already bought my ticket and laid my plans for meeting Hopkins in Atlanta on Friday and I can't and won't stop because of some fool notion of yours. I had supposed you had forgotten about this fourth dimension time-cycle business!" He picked up his satchel. "But whether you've forgotten it or not, the 8:15 sees me ensconced on my way to Georgia."

"But, John, dear," I cried in desperation, "remember the Maxwell affair. If I had only obeyed my impulse to rush out and warn poor Mrs. Maxwell, she would be living now!"

John paused and looked at me as if considering, but it was only for a second; then he resumed his descent of the stairs.

"No," he said, "I've got to be in Atlanta on Friday or stand a chance of losing one of the biggest orders we've had in months."

Then it seemed as though something snapped in my brain and I heard my voice as though it were another's coming from a distance, "The Juggernaut, Fate, grinds mortals beneath its wheels and *there is no hope.*"

I soon became conscious of the fact that I was sobbing hysterically and that John was holding me in his arms.

"Ellen, Ellen," his dear voice was saying. "I'm going to fool Fate a trick and let Hopkins wait. I leave tomorrow at 11:53. Let's see what's on the radio for the rest of the evening."

I gazed up at him with incredulity. "Oh, John," I cried ecstatically, "do you think we can prove that the cycles of time are not inexorable?"

"We can at least give the theory a fair trial," he said smiling.

IV

I POURED John his third cup of coffee, but did *not* feel that it had happened before! A mild thump on the front porch informed me that the morning paper had arrived. I brought it in and laid it in front of John, then I fled to the kitchen, where the odor of burning toast apprised me of the fact that I was much needed. Returning with the scraped toast, I seated myself opposite John for the purpose of resuming my breakfast.

"What news?" I asked casually.

For answer John handed me the paper and pointed mutely to an enormous headline. His face was ashen and his hand trembled.

With a sinking sensation I read the large letters: "Head-on collision demolishes engines and cars, and kills 70 persons."

"John," I gasped, "is it—was it—the 8:15?"

His voice was husky with pent emotion.

"Ellen, it was the 8:15, and I have been on it in the other cycles of time. I know it now."

I gazed at him incredulously for a moment, and then half in fun, half seriously, I said, "John, you are now living on borrowed time!"

He smiled a little wanly.

"Not exactly that, dear," he said, "but my mind has been doing some rapid thinking since I saw those headlines, and I believe I have a solution to your ever-puzzling problem of the fourth dimension, time."

"If you can prove my time-cycles are not incompatible with progress, evolution and growth," I cried eagerly, "you will make me the happiest woman on earth!"

"Wouldn't a new fur coat delight you more?" he asked teasingly.

"Well, that would help some," I admitted, "but tell me what makes you believe that evolution and progress are fact, despite the eon-worn ruts of the cycles of time."

"The fifth dimension," he replied in a quiet voice.

"The fifth dimension?" I echoed, puzzled.

"Which is simply this, Ellen. There is a general progression of the Universe over and above the cycles of time which renders each cycle a little in advance of

(*Continued on page* 850)

BEFORE *the* ICE AGE

By Alfred Fritchey

Foreword

In reading this most amazing, yet truthful story, please remember that I am not a trained writer. I am only a tunnel and mine-worker, and I've written down the things as I've seen them, therefore kindly excuse my English as well as grammar, as I am aware that neither is perfect.

I.

UP on a certain job, they were putting a tunnel through a granite mountain. It was a big job and they were working day and night. They had cut through a vein of water, a vein of onyx and a vein of silver. The silver especially was particularly beautiful, being in the spreading-out, branched form of an immense tree.

However the lead was not followed: for the tunnel was a power tunnel, designed to hold water; and as time was a big factor, and the expense of the project was colossal, such by-plays as silver mines were unimportant. Besides, it was the expert opinion that the silver tree in the tunnel was a mere pocket.

But they did strike something in that mountain that was no by-play. It was neither gold nor diamonds: though in the opinion of a certain professor it was a more remarkable find than either. And it halted the tunnel advance for three shifts, day and night. What then was the find: a find which made tunnel No. 10 in Bald Mountain so celebrated?

Let us review the affair. As I have remarked, they worked two shifts, a day and a night one. This left an interval between, as the shifts were eight hours each. This interval was split into two parts for a purpose, one part being allotted to each shift. Drilling as they did during the working hours, and putting in the charges just before quitting time, it was customary for the shift boss of the retiring shift to set off all the explosions he had arranged, immediately after work. This left a period for the air to clear before another shift came on.

Of course it was necessary to keep an accurate count on the shots heard; otherwise the next shift going in was in danger of their lives. That's why the shooting was allotted to the shift bosses. Even with such precautions, it was not always possible to be certain of the tabulation; for in spite of efforts to prevent it, two shots sometimes came at the same time. A very loud blast was occasionally put down as two shots; but this was mere guess work. And when lives depended on it, it was the worst of judgment to come to such a conclusion.

There are persons of the opinion, however, that the explosion which wrecked tunnel No. 10 was not due to an unexploded shot. How else then do they explain it? They claim there was some kind of an explosive in the chamber which was revealed by the blast.

However, let us observe the shift working at the time of the explosion and see what we may see. This particular night, Dan Parker was the shift boss. Daley of the day gang had reported all O.K. So Parker and his crew rode into the tunnel with no apprehension whatever.

This fellow, Parker, was a red-faced man, jovial, puffy and fat. He wheezed continually, as if he had the asthma. Claimed he got it from being gassed in the World War. He was a good shift boss, tolerant, resourceful and good-natured.

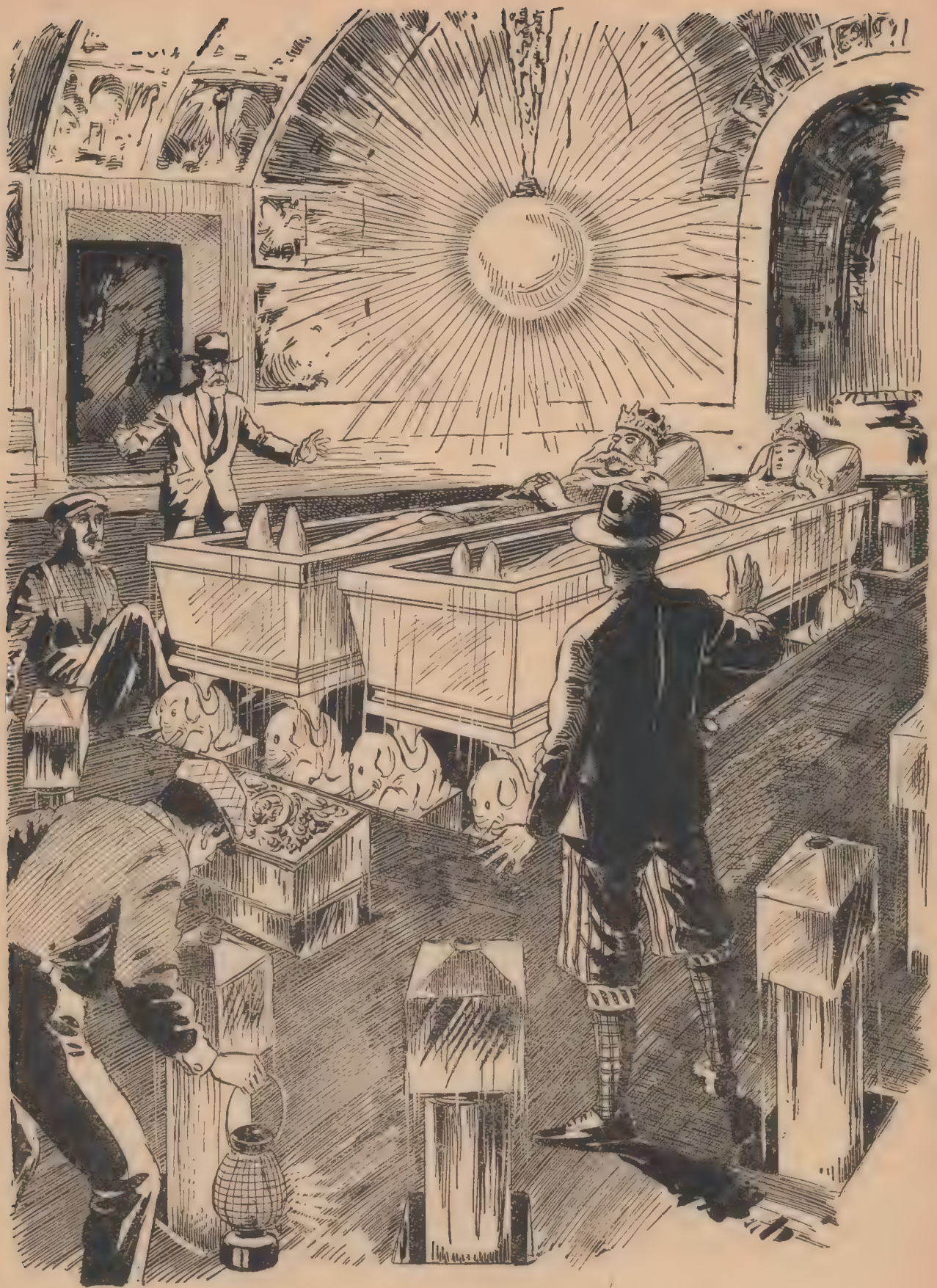
This night there was a fellow, named Reno Bob, as one of the miners. They worked three miners with each shift, each miner having a helper. Then too there was a crowd of muckers; fellows who shoveled up the mud, dirt and rock into the miniature train which hauled out the debris.

Reno was not a regular night-shift man; he belonged to Daley's gang. But a rock had fallen on one of the miners, and the management wishing to lose no time, and expecting a new man every minute, had shifted Bob over to Parker's crowd.

This Reno Bob was built like Hercules. He had a dark, saturnine face and coal black eyes; a very devil of a handsome fellow. He was not especially pleased to hear he was put on the night shift, for he had been in the habit of taking Mrs. Parker, Dan's wife, to the movies down at the pavilion in the evening, and this change would cut him out of such diversion. However, this was not unknown to Dan. Reno was a welcome visitor to the Parker home, whether he worked days or nights, being a great friend of the night shift boss.

Mrs. Parker was a very pretty woman with a flood of yellow hair, and fascinating green eyes. No one would have ever thought her likeness was behind that thin stone wall which Parker and Reno Bob faced when they came on shift that fatal night. But so it was.

OUR new author has the easy facility of the teller of tales of old coffee house and sailor inn charm and freshness, which characterizes this tale. We know practically nothing about the "pre-record" day civilizations. What did the people in the days of the Aramaic language—700 years before the Christian era—use instead of steel and marble? There seems to us to be no good reason why our author's conception should not be plausible. At any rate, the story offers food for thought as well as enjoyment.



Out of the floor of the room, on powerful springs, arose two caskets. . . . In each of the caskets, which were supported on golden-onyx pedestals of carved mammoths, lying in repose, in elaborate costumes, were two figures.

The story is almost unbelievable for weirdness. Talk about King Tut and his tomb. His place wasn't in it with what they found up on the Bald King Mountain. And so many things happened afterward that couldn't be explained by any modern methods. But I anticipate my story.

You see, the watchman at the tunnel mouth always gave the new shift coming on the result of the last boss's tabulation. This night he merely said: "Everything to the good." Now if Daley had missed a count, he should have said so. No one would have blamed him for that. That's merely human nature; not always to be sure. Anyhow Daley had orders to report so, if he hadn't caught a full count. And he certainly failed to carry out orders.

THE new shift rode to their working place in a long string of dinkey cars, run by a fellow whose long legs were nearly in his face as he drove the tiny electric locomotive which pulled the train. This fellow's name was Mat; probably an abbreviation for Matthew; but he is of no interest in the story. Anybody else could have pulled the train. I know I could.

They came to the place which halted them; the place where the fallen wall-surface was piled up on the tracks. Of course the muckers all had high hip boots. So had the miners. They had to have. There was water in the tunnel. No river of water, but great drops which oozed languidly out. And the floor was as slippery as the devil.

The night crew jumped from the cars—not carelessly but with one hand on the side; otherwise he's liable to be on his seat in the mud, sprawled out and slightly damp to the skin. For the place was usually sopping wet. It was a humid, stifling place to work in, in spite of a ventilating fan, which theoretically cleared away the foul air.

But the muckers began shoveling; not briskly and as if their lives depended on it, but with the measured ease of men accustomed to the shovel, and also to mines; a stroke about half between that of a Harp* and a Mexican. Still they had Mexicans working here too; but they were not like the ones I refer to.

So the miners set their jack-hammers and began pounding into solid rock. Ever see a jack-hammer? Well, it's like a long drill, much larger of course, than what a dentist uses. It's worked the same; both of them use electricity. But the jack-hammer gets his from a longer distance. Still I don't know. Maybe the power the dentist uses comes from the same mountain.

The muckers had cleared away most of the fallen matter. And the jack-hammers had drilled one or two holes already. It seems Dan Parker had stopped by Reno to ask him about the show down at the pavilion. He says so himself. And it's reasonable. It isn't Reno tells it. Reno's gone flooey.

Parker says he had just shouted in Reno's ear about the show; heard Reno reply something about Love's Reward—that was the show, you see—and had just turned away, when the blast came. It must have been Reno's jack-hammer; for he's the only one went flooey. Besides any other man who had drilled into dynamite would have known it. Shocks like that ain't forgotten. Well, the blast caught them all. There was a mess, I tell you, in that tunnel. I wasn't there myself but I heard Jonny Tinker tell what he saw. Jonny said it was worse'n a plane-bomb in the World War. Jonny was in that war, so he ought to know.

Well, there was that blast. The train driver, Mat, you recall, who was just running a string of loaded cars out, caught the sound at the tunnel's mouth and he had an inkling of what it meant. He shifted his string; caught up a bunch of empties, took on the watchman and raced into the tunnel.

But he had to stop before he came to the place. There was some kind of an odor neither of them ever smelt before. This odor made the air almost impossible to breathe. They had to come out again.

By this time there was a crowd of men about the entrance. You see they never shot their blasts off at night. It was always morning, when the night crowd came off shift. So anyone who heard the blast on that particular night knew something unusual had happened.

Seeing that Mat and the watchman were stopped by foul air, the emergency apparatus was brought out; and several of the men being rigged up, Mat forever lost his chance to see the result of the explosion; for Charlie Bates took his place.

Of course, the lights were put out of commission by this shock; weren't usually though, which only goes to show it was no ordinary blast. So they had to take in torches; you know the kind! They call them carbide; fill them with a white powder and run in water. Then they light a little hole where the gas comes through. They're not bad lights.

When they got up to the wreckage, they found only debris and darkness. Flashing their torches toward the wall they were cutting through, they saw a great jagged hole exposed by the blast, going into a cavity. But, although this surprised them, they were not there to explore cavities; they were there to save lives. And they got to work looking for the missing men.

One by one they pulled them out. Four of them were dead and one man was permanently locoed. That was Reno. I guess anybody would have been locoed who ran into a similar bit of shaking up. I know I wouldn't want to. The rest of the night crew were O.K. They were unconscious for a time but they came around nicely. Harry Getz says he dreamed of chasing ostriches down in South Africa. If he did, I'll bet he never caught any of them, for Harry is too slow even to catch a cold.

Well, they knocked off work for the day; let the air in for the tunnel to ooze off its poisonous fumes. Next night they went in again. Not the regular crew remember. Men ain't no fools. Most of the regular crew who were capable of moving on their legs were down the hill by this time. You'd be surprised the way a few dead men will change the working crew of a mine. But it does.

Parker still was along however. When a man's mar-

*An Irishman.

ried, he can't just go and jump his job because of some unexpected explosion. The job of supporting a family is a more serious affair often than even T.N.T. blasts. And you know they're some blasts.

II.

THEY came to the ragged hole. They poked in their torches. Finally Parker, who was a brave man, being as he was in the World War, went into the cavern and explored. He came back and his face was white.

"For God's sake!" said he to Dick Combs. "Come in here and see if you see what I see!"

In the cavern in which Parker and Combs found themselves was a heap of skeletons, clustered near a peculiar, wonderfully-embossed, little bronze box, the lid of which had been broken open, probably by the explosion; this lid had a tiny hole, the mouth of an octopus head, with which it was adorned.

The cavern curved away from the line toward which the tunnel was being driven; so that work was only temporarily halted because of the find. But at the other end, along a walk of leopard-spotted agate, was a figure in mosaic, which held them spell-bound. It was of heroic size; and seemed to represent a woman's head on an immense snail's shell; the woman's eyes were large rubies and her head-dress, somewhat like the Grecian statues of their goddesses, was a helmet, made up of innumerable flakes of moonstone. The woman's face seemed remarkably life-like; colored as it was with some shining enamel, which seemed to match the glow of health.

Dick Combs said it was enough to startle one; the head standing out as it did away from the wall and seeming so real. But what was the explanation of the skeletons? No one could guess. It seemed a mystery beyond the knowledge of simple miners and those who know even less than miners; the weak-headed muckers.

Parker and Combs returned; and work was resumed. However, work was immediately halted when Dan went to the mouth of the tunnel and telephoned headquarters. That's where they showed good sense. How'd they know but it might be something of great importance. Old Addington, the sup., certainly deserved credit for stopping work till some of those university guys had a peep. Remember, this was in a solid mountain; and heaven knows how long it might have been there.

Professor Eddy came down. He seemed like a very capable man to us people, whose only glimpse of education is the Schoolmarm up at No. 2 and the Parson at No. 7. He could talk about eocene and pleocene till he had us all woosy. I've studied a few of the 'cenes myself, being interested in geology; but I never had any pleosaurius or broncosaurus eating out of my hand like that guy had. He knew everything that was to be known and some which wasn't.

Well, he went up to the hole in the tunnel wall; gave a look at the snail-lady and gasped. Even his expert knowledge of such things failed to classify her. He was flabbergasted. He was nonplussed. He was absolutely speechless, something queer in a professor.

He sent for a crony of his back at the big school where they both taught; and there never before was such English used as these two delvers-in-the-ground used when they looked in the place exposed by Reno's shell.

Professor Eddy explained the pile of skeletons in the old cavern in front of the snail-lady, as persons sacrificed to her. Then Professor Monk took a peep at the little bronze box, and allowed his colleague had a shot of dope. He said: "The box is in ancient Aramaic; and the inscription thereon says that it contains a volatile poison which shall guard the inner chamber ever from profanation."

Professor Eddy says: "How does it come we are here?"

This of course was a poser for the man who read Aramaic; but some of the boys came to the fellow's assistance and told of the terrible smell immediately after the explosion.

"That explains it perfectly," contended Monk. This was a protection against vandals only till an explosion occurred. It was a very delicate apparatus; probably an invention which has never since appeared on the earth. And the blast broke the small-quantity liberation of the gases and made the poisonous odor which was remarked just after the catastrophe."

I must say Monk reasoned much better than his name sounded. Then the two savants went back and looked at the snail-lady.

"What do you make out of it?" asked Eddy.

"It represents Patience," was the reply.

That fellow Monk was always good at replies. He seemed to have accumulated a lot of sense with his years.

However, Professor Eddy didn't quite like the interpretation of his colleague. "Your mistake is natural," he said.

"I don't acknowledge I have made one—yet," replied the redoubtable Monk.

"Then I will show you," remarked Professor Eddy. "Your solution is merely a superficial observation. If you study the hybrid's form closely you will find the snail shell is not a snail shell, but the shell of the nautilus. Now the nautilus from earliest times has symbolized a rising spiritually. This figure faces a death-chamber; because the woman's head on the nautilus shell symbolizes resurrection. Am I right, my dear Professor?"

DOCTOR MONK admitted that should excavation disclose another chamber behind, Professor Eddy's theory might be the correct one. "What is your theory for the reason such a high spot was selected for the tomb?" asked he then, with the look of a man who has propounded a poser.

"High spots were the sacred ones," answered Eddy, the learned, easily, and as if he had instantaneously solved it.

Doctor Monk shook his head. "Do you know why this place is where it is?"

"Not if my theory does not suffice."

"It is where it is because of a catastrophe. It was, that is the mountain, of a much lower elevation—it may even have been only a hill—but some incomprehensible power lifted it to its present eminence."

"What is your proof?" asked the other doubtfully.

"This!" And Professor Monk exhibited a small whirled shell in the palm of his hand, which he called a whelk.

"Where'd you get this?" asked Doctor Eddy. "And what does it signify?"

"I got it on the mountainside, half a mile down, dug it out of a lime bed. And it signifies that the place where it came from was at one time under water."

"But how do you know that wasn't before this place was used as a sepulchre?"

"Because," answered Professor Monk, "the little bronze box there refers to this sacred tomb guarded by the volatile poison, as an island."

"I don't doubt you,' remarked Doctor Eddy, "but I wish I read Aramaic also."

"That wish is only natural; but surely you don't in the slightest way question my reading, my dear professor?"

"Not at all. Your reading is eminently reassuring to me. But to the public, you must remember, two savants' reading would be conclusive."

III.

SHOVELS and picks were brought up: and a certain number of laborers supplied to the two professors. I had been assigned to them from the first, that's why I can relate so much of their conversation. They interested me and they were worth listening to.

The whole figure of the snail-lady was carefully removed from the wall, so that it could be reconstructed in a museum. And it was found to be only a veneer, put up in flakes on a suitably chiseled out place in the solid rock. All of the pieces were said by the professors to be semi-precious stones. Of course to the average mine-worker this meant nothing at all. Even the most experienced were merely familiar with quartz, granite, limestone and the various ores. While the muckers knew nothing, some of them disputed things, accepted as true for the last half dozen centuries.

Now the door, or what they believed was the door, was found to be in the shape of a truncated pyramid: that's what Professor Monk called it. And Doctor Eddy gave it as his opinion that it could not be battered in, because the inside was smaller than the outside. Dick Grebs, who was a miner, temporarily loaned to the university guys, was for drilling a hole and putting in a light charge of dynamite; but both the doctors vetoed this move. No telling what's inside, they said.

So, instead of a shot being fired, a hole was drilled clean through the door. Do you know that door was a foot thick? Well, it was. We measured it. After the hole was drilled, a stick was gotten the same size as the hole. Pete Miller went out and got it. They were near the west entrance here, an entrance drilled for air, and Pete says he had to climb a tree to get it.

Then they made little holes at the end of the stick and put in little springs which would be compressed to fit the hole but which would spring out as soon as they got on the other side of the door and so give us a leverage. It worked all right. Five of the boys removed the door easily.

The air inside nearly blew out our lamps. We had to wait an hour before we could enter. I didn't care. You see, I got paid just the same. Our time went on. We weren't hired by the profs. We were merely loaned to them. Well, we hung around the West Entrance (it was no entrance at all, as I told you, but an air shaft) all that time and then, Professor Eddy testing the air, said it was O.K. So we trails in.

There was a sight in that room almost made my heart stand still with wonder. A lamp, in the shape of an icicle, with a beautiful blue globe, hung from the ceiling; and it gave a brilliant and weirdly-penetrating light.

The first thing which struck us as strange was the appearance of a man; a big-muscled fellow, a fellow even larger and more powerful than Reno Bob, standing to the north at a niche in the wall. We couldn't mistake this: for there were lights back of the fellow, so that he shone vividly before us. He was a real man. He held toward us menacingly a black tube of five barrels, which had a curious arrangement at the other end, as if it might be some kind of a gun.

Now everybody saw this: all the boys and the two professors. We just looked at the fellow and gasped, as one would do who came on a live man in a tomb, The next moment we looked and the fellow was gone. We went over to the wall and looked at the niche and there was none there. Instead there was a plate of what seemed like frosted glass.

Now did you ever hear anything like that? A man standing life-like before you to disappear while you looked! Professor Monk cried to the Doctor: "Did you notice his classification? He is pre-glacial!"

"What gave you such conclusion?" asked the other doubtingly.

"His robe. It was made of mammoth hair."

"But was it a man?" demanded Eddy.

"It may only be some kind of a projection: some method of throwing up on an apparently blank surface some image of something. Maybe we stepped on something which caused the thing to appear."

So we had to trail out again and practise over our entrance to the place. No use. We couldn't tramp exactly right, it seemed. We never saw the pre-glacial man again.

But say! You ought to have seen that wall. It was made up of an infinite number of squares, so that the roof was neither round nor square, but a kind of a compromise between. And on the walls! There were pithons and dinosaurs in wondrous color, together with gorgeous butterflies, much larger than any now known, and a funny bird which Doctor Eddy announced as a "near relative of the pterodactyl." It was quite a funny looking bird. (Only the pterodactyl was not a bird but a flying saurian reptile.—*Editor.*)

Then, our attention being attracted to a great golden lizard—he must have been the god of all lizards, for he was colored like it—had fire in his mouth, a great golden head, flakes of blue, scarlet and orange on his back, which seemed outlined on what appeared to be a row of shells around the whole room.

PROFESSOR MONK looked at an inscription; took down what seemed like a piece of cardboard, and we all looked. It was light and you couldn't see through it: and it seemed like some kind of a chart. In fact, in red outlines, on a dull gray surface, were some maps of something. But I never saw such maps. There isn't anything on the earth's surface now like those maps showed. They were awfully funny.

But Professor Monk gave an exclamation as if the source of life were discovered. Then he cried: "The land surface of *terra firma* before the last Glacial Epoch."

But somebody trod on something which nearly gave us heart failure. Out of the floor of the room, on powerful springs, arose two caskets. Pete Miller was bowled clean over by one of them. But nobody laughed. It was too solemn a sight. In each of the caskets, which were supported on golden-onyx pedestals of carved mammoths, lying in repose, not a hue different from in life, in elaborate costumes, were two figures. The one on the right was that of a woman. Strange to relate, too, it had a similar appearance to Dan Parker's wife. Now don't get me wrong: there's nothing at all to this likeness, save what some fools like to give it. There were people who weren't friendly to Dan or to Reno, who would like to infer that Reno wasn't just what he should have been, because some idiot noticed that one of the figures resembled the lady in the Parker home. But I, who saw the caskets, say they don't know what they're talking about. It was only a distant likeness. The woman lying in that room had a long-drawn face—dolichocephalic, I think the professors called it—and her eyes were wonderfully formed, even when closed—like an angel's, it seemed to me.

Whereas the man was dark and ferocious looking. He had a moustache somewhat like the Norsemen; and his body was encased in what looked like silver mail; but not in plates, rather it was like fine chain, closely woven together. On his head was a gold crown of filigree gold-work; the thing being a continuous circle of heads of the mammoth.

The woman had on a dress of such fine texture that her body could be seen through it. It looked as if made from spider's silk. Maybe in the period when she lived, they paid more attention to spiders and had developed them to a greater degree than any living spiders these days. Her feet were clad in moccasins of rattlesnake skin. While the tiara—I thought it was a crown, but the Professors called it a tiara—was of gold filigree work, representing a circlet of butterflies, large sapphires being the wings, and making them blue butterflies.

But this was not all.

There were ten little gold boxes, arranged in a circle around the room; standing on pedestals of white marble, the slabs, under the little gold boxes, differing and being semi-precious stones like sagenite, jade, moonstone, sardonyx, bloodstone and stones even the professors could not recognize.

What these boxes were nobody knew. They had a little peep-hole and a glass somewhat like a lens inside, while behind was another glass piece which seemed frosted. But there was only darkness when one looked in these boxes. The professors puzzled their heads in vain, but could not make out what these boxes were. It was plain they were something important; or they would not have been arranged with such care, or been around, adorning, as it were, a king and queen.

Professor Eddy stood at the casket of the queen, studying the lace collar she wore, an exquisite thing, made almost of thistle-down, it seemed, when he gave a little cry of surprise.

"What is it?" asked Doctor Monk.

"The secret of the boxes!"

"Where?"

"On the floor here."

Professor Monk looked and saw a number of golden squares arranged in a mosaic, around a central dove. "I don't see the secret," he confessed. "Explain it."

The other pointed to the floor and said: "Notice the dove is in the shape of a turn-button."

"What of that?" demanded Doctor Monk, incomprehensively.

"Turn it," suggested the other.

Monk did so. There was the instant shining of light seen in the little gold boxes. Each of us, the professors as well as the workmen, selected a box and looked in. In that tiny box, in each of them, in fact, was an inner eight-sided wheel, each side of which contained a picture, which the front lens made real, of some grand scene of the recumbent monarch's reign. Now don't get the idea it was like present-day moving pictures. It was far more natural. It was so made that not only were the scenes in their exact colors, but there was also some arrangement by means of which the figures seemed to stand out like in real life, instead of being flat like moving pictures are. Here they had some knowledge which the present-day moving picture industry would have given thousands of dollars to obtain; and they had it maybe ten thousand years ago.

BUT the thing which excited Professor Monk most was a fantastic bronze-colored box set on a shelf at the feet of the caskets. It had in it little plates of some light material; the surface of the plates containing little squares, maybe half an inch each and a quarter inch apart. Twelve of these plates had a ring through corners at top and bottom; uniting the plates. Monk looked at these through a magnifying glass and uttered an exclamation.

"What is it?" asked his friend.

"The history of the world ten thousand years ago."

"You don't mean it!" cried Eddy, his face filled with joy. "Now I must study Aramaic. I know I must."

(*Continued on page* 837)

MONORAIL

By George McLociard

Author of "Smoke-Rings"

JOHN NALLY, known to the American Press as a globe trotter and author, scowled into the heavy mist that hung low and concealing over the waters of Puget Sound. Delayed by a broken power line, his train had pulled into Seattle hours after the boat to Nome had sailed. He lingered on the dock, undecided what next to do. The next ship, he had been informed by the ticket agent, would not leave until the end of the week. And to attempt to connect with the boat by plane was hazardous in this fog. He sighed resignedly. Yes, there were no two ways about it; he might as well go back to New York and begin anew. This very interesting game of racing around the globe against Time—unhurried, tireless, unrelenting Time—had its constant worry; could he hasten along just a little ahead so that he could anticipate the next move? With a single slip, such as had occurred now, on any one of the many legs, the whole schedule, on which one had spent months preparing, was balled up into a snarl that called for heroic measures to hold it, or eventually would force a new start.

He was about to leave the dock when a tall, well-dressed stranger accosted him with: "I understand, sir, from your conversation with the clerk, that you have missed your boat? I suppose you know there is a railroad to Alaska, in fact, to Nome?"

"Huh?" grunted Nally, a trifle surprised at the announcement. He laughed. "That railroad! Why, its tracks are under mountains of snow!"

"So they are," agreed the stranger, his eyes twinkling with amusement at Nally's evident surprise. "A railroad is in operation. Should you motor to Mono City, a tough drive of forty miles northeast, you can connect with this railroad and thus arrive at your destination several days ahead of the boat."

Nally's eyes narrowed. "See here! If you think you can make me swallow that you're badly mistaken."

"I'm sorry, sir, but I can," declared the stranger, handing a small card to Nally, who stared at it. He had doubted the word of the British Consul at Seattle.

"Pardon me, sir," began Nally lamely, scratching the back of his head with his free hand.

"I understand, sir. I know it's hard to believe what others tell us, when we think we know better ourselves. This, you will discover, is the truth."

After taking the directions of how to get to Mono City, Nally hailed a staunch-looking cab and was soon speeding through the suburbs of Seattle, bound north.

Some hours later the cab, splattered with frozen mud and water, pulled into a small town made up completely of corrugated-iron shanties. The driver slid to a stop before a massive, spidery-legged, sheet-iron construction that bore the name of Mono City Station. After paying the exorbitant but well-earned fare, Nally hastened up the steps to the ticket office.

Drawn by that singular fascination that overcomes all travelers, he walked to the edge of the platform and gazed at the tracks which, he noted instantly, were unlike anything he had ever seen before, for instead of the conventional two-rail roadway, there was a single rail well elevated above the ground on steel trestle work to about five feet above the station floor. It was a mono-railroad!

A deep-toned bell clanged, a guard walked the length of the long platform warning the crowd to keep back of the pipe railing which ran parallel to the edge of the flooring, but fifteen feet back.

From the distance echoed a long, drawn-out whistle and shortly there shot into view the train.

Nally then saw why the guard had warned them to stay back. Projecting from the sides of the streamlined cars, whose general outlines recalled to his mind pictures of great passenger planes, were gondola-like enclosures carrying electric motors that drove the eight-foot air-screws or propellers. The screws were "back thrusting" and made a curious throbbing swish as they spun. Each car carried four propellers, so spaced on each side that the distance from screw to screw through the whole train was equal. Being driven by air propulsion only, the wheels, two to a truck, were idlers; on these the emergency braking system operated.

TEN long cars made up this train, only four being passenger. Nally dubbed the first the "engine," as it had larger forward windows and more powerful motors than the others.

As the propellers stopped dead, the doors slid open

THE chief attraction about the present story is that it contains 100% fact and not much fiction. It might better be called a "scientifact" story than a scientifiction tale.

The monorail system is well known and has been in use for some years. The author, who is an engineer, has improved the old system considerably and there is no reason at all why the machine, as described by him, could not be used whenever we are ready to do so.

Indeed, it is a constant source of wonderment to the editors, why monorail transportation is not used more. It is certainly most practical.

A sharp curve was negotiated without slowing down or "banking." Therefore, Nally decided, the train must be kept upright by means of gyroscopes. . . . It seemed curious that the mere revolution of a weighted wheel should seemingly overcome the effects of gravity and inertia . . .

and the crowd hastened into the cars. Nally settled into a seat and looked over the furnishings which were somewhat American in design but which still had a curious trend toward the futuristic. Following the example of the old-timers, he stowed his baggage in a locker under the seat.

A bell tinkled forward and slowly the train began to move. If the cars had been floating on water the motion could not have been smoother. The trees and shanties began to slip by with increasing speed. Still there came no thud of wheels meeting track joints, no whining grind of gears, just a low, pleasant hum that grew a little louder as the speed of the train crept up.

Nally's eyes swept over the car and a smile flitted over his face when he saw a burly lumberjack glance nervously from his window to the forward end of the car, where a speedometer, with figures large enough to be seen from the rear, showed the speed of the train to be 38 miles an hour, and while he studied it, the rotor turned up mile after mile.

The other rail, twenty-five feet away, was a metallic glint; trees raced by like patches of green blur, while in the distance the forests, the streams, and the snow-covred landscape seemed to be revolving on a huge wheel. Pressing his face against the glass, Nally was able to see the transparent disc that denoted the propeller.

A sharp curve was negotiated without slowing down or "banking." Therefore, Nally decided, the train must be kept upright by means of gyroscopes. He mused on this; thinking how curious it was that the mere revolution of a weighted wheel should seemingly overcome the effects of gravity and inertia; how a heavy wheel of no greater size than twenty-five feet should conquer the wild roll of an ocean liner hundreds of feet in length; of its great value to the navies in the fact that it controlled submarines through the depths with uncanny accuracy, made perfectly stable platforms for the newer anti-aircraft guns and searchlights, and last, but not least, made the automatic stability control of aircraft mechanically possible. His reveries were interrupted when the conductor came through the car punching tickets.

"Say," demanded Nally, searching for his ticket which he had intentionally misplaced in order that he could inveigle the conductor into conversation, "do these trains ever jump the rail?"

The conductor grinned. "No, they don't jump off, they FLY off when we hit a snowdrift. Seriously, this is about the safest form of high-speed transport yet devised, including the plane. During the two years we have been operating we have had but few accidents —all caused by snow drifting across the rail. Find your ticket?"

"Yes, here it is. By the way, what is the speed limit?" He glanced at the meter which now quivered at 79 miles.

"Sometimes the express trains, three or four cars, rip over the rail at 150 coming down from the mountains, but the average doesn't go above 110 on the level stretches."

Nally was dazed, to say the least. One hundred and fifty miles an hour! A commerce carrier, three times as fast as the fastest crack trains! And a monorail at that! How was it that the world did not know of it!

At six that evening the porter called dinner. Nally happened to be one of those whose tickets had "first call." He was seated by an attentive waiter.

He never forgot that dinner. The luxuriously decorated and panelled car might have been the private salon of some hotel instead of the dining car of a monorail train rushing at ninety miles an hour over the snow-drifted valleys of British Columbia.

As he left the diner, Nally came upon the conductor and halted him with the question as to whether passengers were allowed to inspect the "engine." Receiving a nod of affirmation, Nally hurried forward, for he had been waiting impatiently all afternoon to see the control car of this wonder train.

Stepping into the "engine," expecting to find it crammed with all sorts of interweaving pipes and tubes, he experienced a tinge of disappointment. Two huge, mechanically neat, softly drumming gasoline motors were coupled to a large generator partly sunken into the floor. That reminded him of the gyroscopes. Nowhere had he seen a trace of them. Those massive wheels undoubtedly were set below the floors of the car and hence were of immense weight, as they were correspondingly small in comparison with the cars. Perhaps there were more than two to each car? If that were so, the generator must produce an unusually heavy current to take care of all the gyroscope motors and the many driving motors. An unusual amount.

Instead of the messy levers and valves, customarily in use, there was a slate switchboard illuminated by a single shaded light. In the dim radiance cast by this, Nally made out the form of the motorman in a comfortable seat forward. Before the motorman was a small board, no larger than the average radio panel, set with numerous toggle switches. The train was operated by what is known as "remote control." No heavy, sticking levers or handles to twist or turn. Simply a light finger touch would bring into action a complicated system of timers and starting rheostats, while another touch would reverse the pitch of the screws, bringing the train to a quick, cushioned stop.

NALLY became conscious of a shrilling whistle that seemed to come from outside the car and he was unable to locate it until he suddenly recalled the high speed at which the train was traveling. He stepped closer to the window, glancing at the calm, square-jawed motorman whose eyes never strayed from the glittering ribbon of steel that rolled in, outlined in the beams of the twin headlights. The lights flashing over the trestlework, giving it an unearthly, fragile appearance and tinting the trees with a silver fringe that stood out abrupt from the surrounding darkness, seemed to beckon the train to greater speeds. Yet almost two miles of that ribbon were covered every minute!

He rested his elbows on the wide ledge, watching the black blurs that were distant trees flee backwards, noted the reflection of the wan moon on the frozen rivers and streams, and mused on the great change this road was bound to make in the beautiful snow-bound countries

of the north. A green light appeared in the distance, grew larger, and was gone.

Clear track.

Another light, a white one this time, grew from a pinpoint so rapidly that Nally knew it to be a train coming from the opposite direction.

"Here comes the *Meteor*, the fastest mail express on the road," announced the motorman. "She's hitting it up pretty on the level. I'll bet there isn't a plane in these parts that can show their tails to her when she gets going."

A minute later a streak of whitened windows showed for an instant on the opposite track. A trailing blast of an air whistle marked its passing.

ALL the next day the monotrain hummed deeper into the snow-banked regions. After a pause at Dawson to exchange crews and refuel, the train left at seven—exactly fifteen hours after leaving Mono City. With the city behind, a raging snowstorm was encountered as the train began to climb the mountains. Heretofore, the run had been on an almost level track, winding in and out of the mountains, detouring them. But now the contour was more rugged, passes were infrequent; so the track twisted and curled up the elevations and ran in an almost sheer drop down the opposite sides. At times the other rail would curve away and would not reappear for fifteen or twenty miles.

After following the Yukon River to Circle, the train struck the divide between the Yukon and the Kuskokwim Rivers. Almost an hour of steady climbing and then the train hurtled over the summit.

The snow whirled and eddied about the cars as they dipped down. The shrill of the air grew intense; the speedometer crept up—90, 100; stood a bit at 120; and reached its peak at 135! Still not a trace of vibration could be felt, so well laid was that single rail. Soon the speed decreased to normal, for the divide was left far behind.

As the hours flew by and the train dashed across the wastes, Nally began to see the advantages of the monorail system over all other means of transportation. Elevated on a single thin ribbon of steel, propelled by airscrews which know no icy, slippery track, the "mono" had every and all the advantages of the modern steam or electric "two-rail" railroad plus the speed of the airplane. Although the blizzard howled and tore, and snow, small stinging particles from the mountain tops, made sight of objects fifty feet away impossible, the "mono" shot over the rail at daring speed. What mattered a head wind when forty racing screws thundered their defiance? The motorman knew the section and relied upon his safety devices and signal lights, spaced every eighth mile, to warn him of danger.

Nushagak was reached at seven in the evening, and the train with a new crew took up the last leg of the 3,300 mile trip.

Restless, for the trip was becoming monotonous, Nally wandered through the train glancing at the passengers. The coaches were almost empty. Very few, except those on business, made the trip to Nome or beyond in mid-winter. By far, the greater number of these were natives, prospectors and traders. Here and there was a man or woman whose dress and actions made it evident that this was their first trip north. In the forward coach Nally came upon a group of roughly dressed men, fur caps pulled down over their faces, hiding them, presumably asleep. One regarded Nally unfavorably through blinking eyes.

Nally passed on through the narrow communicating door to the "engine" and sought his former position at the window.

The dazzling beams of the headlights apparently disappeared at a point fifty feet from the car. From that point a glowing radiance swept back—a grayish radiance, cut and streaked by blinding, white-hot meteors that came shooting in from the regions beyond that reached by the lights. The interior of the "engine" was dimly illuminated by the reflections. Below, the rail rolled in under the train—straight and true as a taut wire. The screws thundered and whined as the changing blasts of the blizzard tore and pulled at the cars. But they, thanks to those spinning gyroscopes, were as rigid and unyielding as the mountains themselves.

Turning to the motorman, Nally commented, "Bad night."

"You bet. Nothing to worry about, though. We'll roll into Nome on time."

"But, what if something should happen?"

"What, for instance?" queried the motorman.

"Well—broken rail," hazarded Nally, knowing this accident could cause a terrible wreck should the train hit an open spot at the pace it was then going.

"Broken rail? See that green colored plate on the "toggle board"? When a red light flashes in its place a number of things may have happened. A tree may have fallen on the rail, a bowlder may have demolished a part of the trestle, or the cold may have snapped or sprung a switch. If this train is on the section in which the trouble lies, an automatic trip-arrangement throws off the power within the train. Immediately the emergency brakes are applied and we come to a stop."

"What I can't puzzle out," continued Nally after a pause, "is how you could keep upright after the power is off. These cars look so top-heavy that it is a wonder they don't fall over when we go 'round a curve."

"If all the power was off, the gyroscopes would keep us upright for almost an hour. In that time, if we could not get going again, that is, if we had motor-generator trouble, we'd drop supporting bars to the trestle transverse members and we would be held upright that way."

"The conductor out of Mono City mentioned running off the rail when hitting snow drifts. Is that true?"

"In a way, yes," agreed the motorman. "The surveyors, when laying out the roadway, took into account those places where the snow drifted high and so made the trestle-work higher to clear. But, you know, man can't guess all of Nature's tricks. And so it happens that once in a while we come upon a drift that is higher than the rail and, if we see it in time, all is well. If not, we just dig straight through, tunneling into the drift until the 'mono' stops."

NALLY listened to the shrilling wind and hoped no drifts lay ahead that night. At least, not while he was in the "engine." "By the way," he continued, "how is it that this road hasn't been made known to the world. I never knew it existed until a day ago."

"I couldn't say for sure. From what I've heard, this is an experimental road built by a large American firm. If this system works out, they expect to cover the entire American continent with a vast monorail system. I guess it's to cut down opposition and hard feelings that news of it is kept quiet. Even so, I guess a great many people know that we're doing a paying business up here, hauling a tremendous amount of freight that would ordinarily go to the boats."

"Boy!" ejaculated Nally, "that would be great! Think of going from New York to Chicago in nine hours! Goodbye to the old forty-five mile an hour 'chuggers.'"

There was a movement to their rear and as Nally turned to see what caused it, a new voice broke in: "Reach for the roof and be quick about it, if you want to live to see those monorail trains. Up."

The motorman glanced back and his face showed surprise as he threw off the power.

Four men in the rough garb of the northland stood covering them with automatics. Nally recognized them as the fellows he had noticed in the forward coach. Evidently some sort of a train robbery was being staged. Alaska was the last frontier and a few of Jesse James' descendants roamed her mountain fastnesses and plains.

Nally submitted to the rough handling of the bandits, who quickly had him bound and tied to a stanchion of the large switchboard. The motorman was tied about six feet away from him. Meanwhile the fellow who was apparently the leader studied the starting mechanism and, when the rope benders had completed their job, the four left the car.

"What in the world do those fellows want?" demanded Nally, after making several fruitless attempts to loosen his bonds.

"Nothing—Why! Yes, there is! We have about $9,000 in gold aboard that we picked up at Dawson. These fellows must have gotten wind of the shipment," murmured the motorman. "I'm wondering what they'll do after they find the gold."

After a few minutes the bandit chief returned. He grinned as he inspected Nally's and the motorman's bonds. Then he busied himself about the switchboard, winding copper cable about the fuse blocks.

"Say, what are you doing there?" demanded the motorman, realization of what was to follow dawning upon him.

"Want to know?" he laughed, throwing the coil of cable to the floor. "Yes? With you two tied to the floor, the door locked, and the safety fuses shunted, what is going to prevent this train from piling at Twenty Mile Hill? What if the bridge were blown out? How does that hit you?"

"Why, you crazy loon, don't you know what you are about to do?" cried Nally, seeing the man was serious.

"This is my *little* joke!" laughed the bandit. "Just think of hitting that open bridge at 120 miles an hour. Some mess when this car plunges on the rocks below! Eh, what?"

"Who are you?" shouted the motorman, beside himself with anger.

"That's telling tales that will not concern you within an hour," retorted the robber, turning on his heel. At the forward end of the car he took a ball of twine from his pocket and tying one end on the starting toggle switch, he backed out of the car, laying the cord carefully on the floor. He ran the string under the door, closed and locked it.

"Well, I'll be a d— fool," exploded the motorman. "That rascal is the trickiest fellow I've ever seen. He can start the train from the ground—outside, knowing that the switch has to be pushed forward to bring the train to a stop. Look! The cord!"

As he spoke, the string grew taut, the switch snapped back, and a series of clicks from the switchboard told that the starting mechanism was at work. The train was in motion without a hand at the controls!

Beside the trestle some ten men watched the slow start of the monorail train with crazy grins contorting their faces.

"Wait until they reach the bridge," suggested the leader, "they'll be sorry for having automatic control." A loud roar of amusement came from the men. The red and green tail-lights faded into the swirling snow.

The monorail train speeded up while the thud of the motors and the whine of the generator grew louder.

"How far is that bridge?" queried Nally, a curious dry feeling settling in his mouth.

"Thirty miles or so. All down grade," mumbled the motorman, struggling to break loose.

"The safety devices. They'll stop us?"

"Not now. That"—the motorman's double-edged, ozone-generating explosion forced a break—"aid of the devil fixed those up so they are useless."

Nally turned and twisted, trying to loosen the ropes a little. Just a little. But they would not give. He did not hesitate, but struggled on, the sweat of desperation rolling down his cheeks. He had to get loose! Every second brought that bridge that much closer. Closer, nearer, faster!

His thoughts leaped ahead of the train. He saw the train rushing over the snow-drifted valley down which the train was plunging, with grinning Death at the controls, the open bridge ahead, the sickening lurch of the cars as they fought to keep upright, and then, the rending crash of metal on unyielding rock. He almost leaped out of bounds, for at that moment there came a frenzied pounding at the door.

"Hey, Dickinson, open the door."

"Can't. We're bound to the floor. Break it down. And for the love of life be quick about it. The bridge is *out* and we can't stop," screamed the motorman.

The train lurched wildly around a curve, its gyroscopic stability almost overcome by inertia. Straightening out, the "mono" streaked along at headlong speed as it dropped down the long, last grade.

Nally's ropes slipped a trifle. He was in agony; the

mental strain and the pain from his torn wrists drew muffled groans from his lips. On him or the motorman depended the lives of those in the other cars.

A crash!

The passengers and crew, now alive to their danger, were cutting through the thin metal door with wreck axes.

The screech of the air about the cars was ear-rending.

The axe head went on cutting long jagged streaks in the door.

Nally and the motorman looked resignedly at each other, for their sharpened senses had felt the wheels pound across the derail switch set a half mile from the bridge. At the present rate a few seconds away.

The door collapsed at the next stroke and the relief motorman flew to the control board and threw the screws into reverse. The train slid onward, emergency brakes screaming, screws churning up the air. The car became crowded with shouting, milling men. Dickenson was released and he and Nally stumbled forward.

They looked ahead. Then at each other, amazed. In the glare of the headlights lay the long trestle bridge, unhurt and standing!

"It wasn't blown up," stuttered Nally, as the truth dawned upon him. "It was the bandit's *little* joke—to draw our attention away from him."

THE END

BEFORE THE ICE AGE

By Alfred Fritchey

(*Continued from page* 831)

"Think of what it means to mankind!" observed Doctor Monk. "Maybe the secret of the earth's shifting of its poles can be learned."

Doctor Eddy picked up one of the plate-books. "How much writing is on one plate?" he asked.

"As much as is on about twenty-five pages of an average book. Each of these squares is a page. Look and see!"

Professor Eddy gazed through his friend's magnifying glass. "Wonderful!" he cried. "We are looking at the first book, Doctor."

As it was now time to knock off work for the day, the professors and everybody else left the cavern and returned to camp, thinking nothing would be molested: as one would naturally think in the mountains where even doors are left unlocked.

But they reckoned without taking into consideration the stupidity of some corporations. It is true the power part of the tunnel was the primary concern of those at the top. But—they might have taken a bit more interest in the excavation still going on. If they had done so, such an irreparable loss would not have taken place.

The night shift, which had been at work when the opening up of the secret chamber had been carried out, asked no questions as to whether explosions would in any way affect the discoveries made. Instead, when Parker—and I blame Dan for this—came to leave the hole, he touched off the holes he had drilled.

Professor Monk gave a gasp and nearly fainted when he heard the shots.

"What's wrong?" asked Professor Eddy.

"Nothing," answered the other, "but they might have told us."

"Who?"

"Whoever set off those shots."

"You're right!" exclaimed Doctor Eddy. "It might have ruined those caskets. They looked like glass to me."

IV.

PROFESSOR MONK was so wrought up he could not sleep that day. You see, he had been on the night shift opening up that chamber of mysteries. So he went and got Professor Eddy, who was also awake, and the two went up to have a look.

Now I wasn't along this time, so I'll have to give hearsay: and hearsay, as anyone knows, is unreliable.

When the two savants came to the room of their wonderful discoveries, they were aghast. And well they might be. There was not a thing to be seen of all that list of wonders. Professor Monk tottered. "You will not have to learn Aramaic now, Professor Eddy," he said brokenly.

"Why?" asked Eddy, stunned and not knowing what he said.

"Nothing to read."

"Where are the tablets?"

Doctor Monk picked up a handful of sand at the foot of the pedestal where the book sheets had reposed. "This is all that remains of them," he said. "They were made of glass."

"But the caskets!" cried Eddy. "Where are they?"

Monk picked up a handful of sand from a heap at the foot of the carved mammoths: "This is part of them!" he said.

"But the bodies!" interposed Eddy.

"You don't grasp the nature of our discovery," explained Monk. "They were not bodies. They were glass replicas of the original. They were wonderful likenesses."

"I'll say they were," said Eddy. "And the maps and histories?"

"Glass, all glass!" whispered Monk hollowly.

"No wonder nothing remains of that age," remarked the other. "Nothing of the pre-glacial age! It was an Age of Glass!"

THE END.

The SPACE BENDER

By Edward L. Rementer

PART I.

The Fourth Dimension

THE disappearance of Professor Jason T. Livermore, the eminent scientist, was one of those unaccountable mysteries that could not be explained. There was nothing on which to base a theory; no fact on which to begin an investigation. He simply disappeared. That was all there was to it.

As his private secretary and pupil, Randolph S. Forbes was subjected to endless questioning from the professor's many friends in the scientific and social worlds. It was all to no purpose. He knew nothing and could tell nothing.

On the night preceding Livermore's disappearance, Forbes had accompanied him to a gathering at Newton Hall, where the scientist had made a brilliant speech on the possibility of parallel lines meeting if sufficiently prolonged. Afterwards they had driven directly to the professor's home and both had retired for the night.

In the morning it was found that Professor Livermore had disappeared without leaving the slightest trace. His bed was unused and everything else was in perfect order. There was no word—nothing. He had vanished like an extinguished light.

He never was seen again. The excitement caused by the total disappearance of so well known a man was intense, but time causes all to be forgotten. After a while public interest was transferred to an Indian Prince who was reputed to have five hundred wives. In reality the man belonged to a cult which prohibited marriage altogether.

Forbes was retained by Professor Livermore's successor, and affairs settled into their usual routine. Yet he could not entirely forget. Livermore had been a good employer and he had had the personality of one in a thousand. Although an excellent man and kindness itself, the new incumbent was hopelessly academic. He entirely lacked the giant mentality and breadth of vision of his distinguished predecessor.

HERE is a capital story that you cannot help but enjoy hugely.

What, after all, is evolution, and what surprising form is it not likely to take? If you were ever at an aquarium and noticed some of the amazing and altogether inconceivable forms that marine life take on, not even the most grotesque form imaginable can prove surprising to you thereafter. Fish that carry their own light supply in their eyes; fish that carry their own saw; fish that have their own vacuum suction arrangement and dozens of others equally astounding, no longer phase us.

On the other hand, did you ever see a man with a typical face that looked like a fox; a man who looked like a pig, and still another man who had a bird-like appearance? Biologists tell us that all of this is inherited from the lower animals.

"The Space Bender" makes this clear to the nth *degree.*

LATE one stormy night, many years after Professor Livermore had vanished, Forbes, now a man well along in middle age, was sitting alone in his chambers—thinking. He had reached that meditative mood on the borderland of sleep, when he was startled to hear the doorbell ring.

Opening the door, he saw a decent looking man of about fifty who, to judge from his general appearance, was some kind of high grade workman. Under his left arm he held a small package which he was at some pains to shield from the wind and rain.

"I want to see Mr. Forbes," he stated. "Mr. Randolph S. Forbes is the full name, I believe. He lives here, doesn't he?"

"I am Randolph S. Forbes," the secretary replied, at a loss to fathom his visitor's business. An idea of some new hold-up technique flashed through his mind, to be dispelled by the self-evident solid, middle-class respectability of his visitor. Just then a particularly vicious gust of wind almost blew the door from its hinges, dashing a cloud of rain into their faces. The requirements of ordinary courtesy asserted themselves.

"You had better step inside," Forbes advised. "This is a poor night for vestibule conversation."

"It is rather moist, to say the least," the stranger agreed with a pleasant smile that put at rest any lingering doubts about burglars. "I won't keep you long," he added.

The man laid his precious package on the table and unfastened the wrapping. Inside was an unusually thick necked bottle, made of some substance that looked like opaque glass. He continued:

"I am the foreman of the gang which is working on the new subway out in the Arlington district. Yesterday we dug up this queer-looking bottle. It has your name and address on it, so I told the super I would stop around and give it to you on my way home from the Union meeting tonight. Is it yours?"

Forbes took the bottle and examined it more closely. It was about the size and shape of a common milk bottle, but where the cardboard cap should have been was a lid that apparently was screwed on. His own name and address was written on this lid.

Forbes was interested in the material of the bottle, which was unlike anything he had ever seen before. It seemed to be glass, but was not brittle enough, for it bent slightly inwards under the pressure of his fingers. Also, it was far stronger than any glass in ordinary use, for, according to the foreman, the bottle had been struck directly with a pick and had not broken, as could be seen.

To my consternation, my guides (I no longer regarded them as captors) hesitated not a moment, but proceeded to mount the giddy way with the utmost unconcern. I hung back. They motioned for me to come on, evidently entirely failing to understand the cause of my reluctance.

By this time Forbes was interested almost to the point of excitement. What could it be? Who had addressed it to him and then buried it several feet underground? A thought struck him. Perhaps it was a practical joke played by some of the college football team, with most of whom the agreeably mannered secretary was on good terms.

If that were the game, they should not have the satisfaction of having their emissary witness the consummation of their pleasantry—not if he could help it. He gave the man some cock and bull story which was accepted without comment, thanked him for delivering the thing and, slipping him something a little more substantial than thanks, got rid of him.

As soon as he had gone, Forbes tried to unscrew the cap, but could not budge it, although he exerted all his strength. He was about to resort to a hammer and chisel (although what use a chisel would have been on a substance like glass, that was as tough as India rubber, is difficult to imagine) when the happy expedient of trying it left-handed occurred to him. To his surprise, the cap came off without any trouble. Inside was a quantity of closely written manuscript. The idea of a joke grew stronger.

"Ha! Ha!" he laughed, jesting with himself. "The manuscript found in a bottle, eh? By Edgar Allan Poe, alias Tom, Dick or Harry of the football team. A clue to Captain Kidd's treasure, no doubt. All right, boys. If you can go to the trouble of writing all that stuff and making a left-handed milk bottle out of the Lord knows what for the sake of a practical joke on me, I'm game enough to see it through. So here goes!"

He took out the manuscript, half expecting to find it a copy of Caesar's Gallic War or something of the sort, glanced carelessly at it and dropped his pipe in completely dumbfounded amazement.

Here was no joke. He knew that writing. There was no possibility of a mistake. Too often had he copied pages of it, correcting spelling and grammar, with which details the writer never bothered—that, he told his secretary, was his job. It was the writing of the vanished scientist, Professor Jason T. Livermore!

Trembling with excitement, Forbes smoothed out the pages with shaking fingers. The writing was on some kind of white substance, the nature of which he could not determine. It was like paper, but thinner, more delicate. The ink, too, was different from any ink with which he was familiar. It was a beautiful shade of faint purple that seemed to glitter and gleam with some interior luster. For some unaccountable reason, Forbes thought of his pet cat. Glancing down, he saw old Archibald, as he called the creature, looking at him with an intent stare.

Paying no further attention to Archibald, who made a couple of dignified noises and disappeared, he rapidly skimmed through portions of the manuscript and felt his eyeballs literally starting from their sockets with stark, unadulterated wonder. Sinking into the most convenient chair, he automatically lighted his pipe and read, and read, and read.

Never before, since the world began, had anyone come across such a tale as lay before his wondering eyes!

What the world would say, he knew not. Nor did he care. He, at least, believed. Professor Jason T. Livermore was the very type and soul of the cautious scientist who meticulously verifies every conclusion by the most detailed investigation and experiment. It was not in the man to perpetrate such an elaborate hoax, particularly a hoax without any conceivable motive.

No—let the crowd say what it would; Forbes believed. Of doubters he would ask two questions: First, where *was* Professor Livermore? Second, of what substances were the bottle and manuscript composed? When these were answered, perhaps he would be skeptical. Until then, he would believe!

This is the story as recorded on the manuscript by Professor Jason T. Livermore:

"AS you know, I have always been particularly interested in the rather fantastical subject of the fourth dimension. To my mind, the possibility of a fourth dimension has opened a field for scientific investigation, where results might be obtained beyond our wildest dreams.

"The theory that *time* was the fourth dimension, however, was something I could not accept. This involved the corollary that it was possible to travel in time the same as in any other dimension. I hold such a feat to be impossible because time does not exist!

"All arguments relative to time traveling seemed to me to rest on a fallacy. This is the belief that things exist, even for the fractional part of a second, in a state of rest. They do not. Everything is in a state of flux. Change is eternal. It is just this change that we call life.

"Time merely measures the *duration* of existence. It has no entity apart from the thing existing. A child is born. When it has lived one year it has gone through certain processes of growth, which took place while the earth completed its orbit around the sun. While the child undoubtedly did and does exist, it is impossible to point to any particular moment and say, 'Now! This is the time the child exists!' In the very act of selecting the moment, *that* moment has become the past. Growth or change has proceeded and a child, different to the extent of such growth or change, now exists.

"Time is simply a measure of the processes of life, the same as a foot is a measure of length. Who ever heard of a 'foot long' apart from something that is a foot long? We have marked on a rule a division we call a foot. When a piece of string is a 'foot long,' we mean it has the same extension in length as the division on the rule we call a foot and to which we compare it.

"In the same way, when a child is a 'year old,' we mean it has completed certain biological functions while the earth was completing certain orbital movements to which we compare it. The term, 'a year long,' apart from the entity functioning during that period, has no more being than the term, 'a foot long' has apart from the thing possessing that extension in space."

Forbes paused for breath. This was certainly pretty

stiff reading. Rather dubiously he thought, if the rest of the manuscript continued in that vein, he stood an excellent chance of being in the lunatic asylum by the time he got through. He did have a hazy notion of what Livermore meant, though. Although he was not a famous scientist like his former chief, Forbes was by no means a fool. He possessed a very clear and logical mind. He summed it up, walking about the room and checking the points on his fingers.

Time could not be a dimension. One can move about in a dimension. To travel in time one must assume a whole series of events, past, present and future, all going on at once.

A novel idea came into his mind. It was so grotesque, it caused him to smile. He could put all his money out at interest, travel a hundred years into the future, collect the fortune and return to the present, a rich man.

Or, he could go backwards into the past, give himself good advice as to how he should avoid mistakes he had made and so grow up to be a different man but—then there would be *two* of him at present instead of one! No, no—the thing was too absurd. Livermore was right. Time was not the fourth dimension.

He relighted his faithful pipe, assisted Archibald, who had reappeared, to a strategic position on his knee, and went on with his reading.

"From the above," the manuscript continued, "it is easy to see that abstract terms of all kinds are really meaningless. Concrete things exist and have being, possessing the special qualities proper to their particular form of existence, but the qualities in themselves do not and cannot exist apart from the object of which they are attributes." It went on:

"LEAVING out of consideration the ether with which our present argument is not concerned, space is nothing. It is the absence of something. Hence, paradoxical as it may seem, space does exist, as a mental concept, simply by being nothing!

"To make my meaning clear, try to think of the color red without thinking of some object that is red. You can't do it. But you can easily think of space without anything in that space. In fact, so soon as you put something in space, that particular part of space ceases to be space just because there *is* something there.

"Therefore it is possible to travel, to move about freely in space. We know of three basic ways in which we can move, each of them at right angles to another:

"(a) Forwards and backwards, or *length,* (b) sideways, or *breadth,* and (c) up and down, or *depth.* In other words, space, as we know it, permits objects to move in three dimensions or combinations of the same. There is no reason to suppose, however, that other beings, differently constituted, may not know a space allowing other dimensions—four, by way of example. It is not a question of the attributes of space. Space has no attributes, being the absence of attributes. It is a question of the faculties for perception of the beings inhabiting space.

"Assume a two dimensional world. A universe in which people have a knowledge of length and breadth, but no knowledge of the third dimension, depth. Such a world would be the surface of a map. The inhabitants of our hypothetical mapworld would move about on the surface of the map much as a block of wood floating just awash in a tub of water would move about.

"They would live in or on the surface of the map which would be *their space.* Their range of vision would be forwards, backwards and sideways, but never up or down. They would have no knowledge of up or down, which requires a third dimension. To them, the third dimension would not exist any more than the fourth dimension exists for us. However, it would be there, just the same, exactly as the fourth dimension may exist in spite of the fact that we know nothing about it.

"Suppose the map were produced upon the surface of a globe. It would then be in a three dimensional world, but the inhabitants of mapworld, looking *along* rather than *out of* their two dimensional space, would never know it. Their space would still appear to be flat, to have only two dimensions.

"It would be an axiom of the geometry of the mapworld that parallel lines could not meet. Yet if two mapworld professors should travel sufficiently far along two of their supposed parallel lines known as meridians of longitude, they would find they *did* meet at the poles. If they were not blockheads, this fact would prove the existence of a third dimension.

"Certain experiments disclosed that some of our apparently parallel lines, if sufficiently prolonged in our three dimensional space, showed a tendency to come together. This indicated the existence of a fourth dimension.

"I set myself to work to prove it. By a series of experiments dealing with the speed of light and a number of other things, I reached a point where I was obliged to accept the existence of another dimension, at right angles to the ordinary three dimensions. This was the much talked of 'fourth dimension.'

"All that was required was the ability to see it, to experience it, and—to get into it. Yes, to get into it, for I made up my mind to devote my life, if necessary, to perfecting a machine, of which I already had the rough idea, that would project me out of our universe into the fourth dimension!

"You must not think that this idea is as fantastic as it seems. I had no intention of trying to remain in a universe of four dimensions for any length of time. I knew well enough such an attempt would mean my death.

"If you will stop to consider for a moment, you will see this inevitably would be the case. Let us return to our analogy of mapworld. To one of these people a square, for instance, would not look like what we call a square. Looking straight ahead or to either side, all they could see would be two of the boundaries of the square or two lines vanishing into the distance at an angle.

"To us, however, a square is an entirely different thing. Looking *down* upon it, we see an area of surface inclosed by four straight lines. We see the *inside*

of it. A square viewed in a three dimensional world is so utterly different from a square viewed in a two dimensional world that it is not the same thing at all. From the mapworlders view, it is not a square at all.

"In the same way, if I succeeded in transporting myself into the fourth dimension, a cube would be as different from what we call a cube, as a square, viewed from three dimensions, would be different from what our two dimensional friends would call a square. It wouldn't be a cube. It would be something else.

"So with everything. A four-dimensional world would be so far removed from anything which the five senses of humanity are capable of appreciating, that the functions of the human body—made for use in a world of three dimensions—would cease, and death would result.

"It was my purpose to enter the fourth dimension but to return to the normal world of three dimensions before the merest fraction of time had elapsed. In this way, I hoped to be able to survive, just as it is possible to step quickly through a room full of poison gas without being killed. Also I should take the extra precaution of drugging myself into a state of insensibility to avoid the terrific sensations attendant upon entry into a world not made for men.

"No doubt you will wonder what use the experiment would be if it were to last only a second, especially since I should be unable to see anything even for that second? So far as the fourth dimension was concerned, it would be no use at all. The fourth dimension was not what I intended to investigate. It admitted of no investigation by humanity. My plan was to make use of the fourth dimension to travel distances in the third dimension, which were otherwise impossible to man. In short, I had made up my mind to go to the planet Venus!

"THERE were several reasons why I selected Venus as the object of my stupendous journey. The conditions likely to be found on that planet closely resembled those on this earth. The size of Venus (its diameter is about 7,700 miles) is very nearly that of the earth, while its mass and density bear the respective relations of .82 and .94 to those of the earth. These facts were of great importance.

"If I went to a heavenly body much less than the earth in size, mass and density, my weight would be so much reduced that walking about would consist of a series of gigantic leaps and bounds, which it is doubtful if an organism, constituted as yours and mine are, could survive, even allowing that the shock of alighting would be correspondingly lessened.

"On the other hand, to visit a planet possessing the opposite characteristics, might increase my weight so that I could scarcely move at all. Under these conditions, my bony framework would probably be unable to support my flesh and I should fall apart.

"Furthermore, it was reasonably certain that Venus possessed an atmosphere which would support life, which was a necessary requirement. There were two things, however, that gave rise to serious doubts. Venus, at its mean distance from the sun, is 27,000,000 miles nearer that luminary than is the earth, so that a temperature considerably hotter than any to which I was accustomed, might be encountered.

"On the other hand, some astronomers held that the inclination of the axis of Venus would produce a winter correspondingly dangerous at the other extreme.

"The highest temperature ever recorded on earth was 134 degrees Fahrenheit, at Death Valley, U. S. A., while the lowest temperature on record was 90.4 degrees below zero, Fahrenheit, in Siberia.

"Human life is a very delicate organization, adapted to this earth. I did not expect to live in a temperature much outside of these limits. I dismally reflected. The question was—should I be roasted or frozen to death? Well—I must take the chance, just as other pioneers had done before me.

"The distance of the planet from the earth made no difference. By the method I proposed to employ, all distances were alike. This was literally to *bend* our three dimensional space, during the second I should be in the fourth dimension, so that the planet Venus and the earth would touch. Not touch in three dimensional space, you understand, but touch in four dimensional space. Then, while the planets were in juxtaposition, my fourth dimensional machine would roll me, totally unconscious, from the earth to Venus!

"Most likely you will consider this to be the ravings of a madman. I assure you, however, I was far from insane. Theoretically, the thing was quite possible and I was willing to stake my life (which, of course, I was doing) that it was also possible practically.

"Again consider mapworld—a map of the United States, for instance. On such a map, New York and San Francisco are represented as approximately three thousand miles apart. Any creature traveling along the surface of the map must travel the entire distance to get from one city to the other. This in two dimensions, the only dimensions of which our mapworld folks have any knowledge. Nevertheless, you and I, being in the third dimension, could readily grasp either end of the map and *bend* it into a position roughly approximating a half cylinder, so that the two cities touch.

"Furthermore, the inhabitants of the map, to which they would be bound by the laws conditioning their two dimensional being, would not know the map had been bent. As explained before, the map would still appear flat and they would crawl about in their two dimensional world entirely unaware that their space—the map—had been moved through the third dimension. They might be rather amazed to find themselves transported from New York to San Francisco in an instant, but they could have no understanding of how they got there.

"My machine, which I actually perfected, after months of experiment, sleepless nights of unremitting toil when failure seemed all that I could expect, would, I believed, when set in motion, project itself into the fourth dimension, take hold of our three dimensional space, and *bend* it until this earth and the planet Venus met.

"I cannot give you an accurate and detailed exposition of the machine, which I named *The Space Bender,* because, frankly, my dear fellow, you would not understand me if I did. Besides, the discovery is mine. I alone conceived it, thought it out, planned it, made it. I do not intend to share the secret with anyone, not even you, old chap, until I feel so disposed.

"The physical appearance of *The Space Bender* was unique and interesting. It was made of a new metal I invented, resembling copper, but much harder, and having a gloss and smoothness greater than copper. I obtained it by subjecting—but there! I said I would not reveal the secret and I won't!

"In general, it looked like a large, ill-shaped pair of tongs having two sets of grasping implements, one on each end, with the handle in the middle. There were certain dials, like the dials on an ordinary radio receiving set, which enabled me to measure the exact degree of 'bend' I desired. These were what I may term my 'range finders.' By their control, it was possible to make the proper angle of bend to touch Venus instead of some other stellar body. It was furnished with a little lever by which the apparatus could be set in motion. One set of 'tongs' would bend three dimensional space. The other set would be fastened around my body to push me through the fourth dimension from the earth to Venus.

"So much for the machine. Everything was ready by the night of the meeting at Newton Hall. My plans had been perfected; my arrangements made. I awaited the adventure. So soon as I left you, I went from my room to the laboratory, packed a small gripsack with a number of useful articles, including a good automatic, throwing an explosive bullet. This was certainly advisable. Who could tell what fearful creatures I might encounter before I got back to earth again?

"I fastened the machine around my body, set the dials at the proper positions, took a large dose of morphine and, with my hand on the switch, waited for the drug to take effect.

"I knew that I faced death. It was quite possible that I would never reach Venus; that I would be instantly killed when I set the machine in operation. Even if I did reach my goal and actually did arrive on the planet Venus, would I be any better off? What monsters might I not find there, what terrors, what horrors undreamed of by terrestrial man? How did I know what was there? Perhaps there would be beasts to whom my explosive bullets would merely be irritating flea bites!

"In spite of all this, I was calm and collected. I had taken no one into my confidence. I wished to avoid becoming the butt of ridicule, if I failed. I knew what I was doing and was prepared to go through with it. I was sustained by the support that has upheld countless martyrs through untold tortures throughout the ages—the desire for knowledge, the thirst for truth!

"Ha! I nearly fell asleep then! The morphine was working! I must throw the switch. No—what's the use? It's too much work. I'll just drift off to sleep—to sleep—to . . .

"This would never do. With a tremendous effort I roused myself, reached out thousands of miles and turned the switch.

"A blinding flash of rose-colored light overwhelmed me. I felt light as air; my soul soared out, up, onwards. . . . My whole being seemed to be aflame, burning. A terrible sickness seized me. My very bones were racked and tormented. It did not seem that I could bear the frightful anguish! With a last excruciating hell of agony the rose-colored flame burst into a million bubbles of living, pulsing fire—and vanished! Utter, complete blackness came upon me. I ceased to feel, to think, to be! It was the end."

PART II.

Venus

"I WAS awakened by a warm, gentle rain falling on my face. For a time I made no effort to collect my senses, but lay, with eyes closed, pleasantly inert, enjoying to the full a delicious sense of contentment and languor.

"Gradually it dawned upon me there was something I ought to do or remember. It tormented me, persisting in spite of all efforts to drive it from my thoughts. I was extremely hot. The atmosphere was like that in a greenhouse, humid, sickening, overpowering. I did not open my eyes, but continued to lie in a kind of stupor, the perspiration running from every pore.

"As fast as I would drowse off, the idea of something neglected would prod me into consciousness. Curse it! Couldn't a man even take a nap without being annoyed in this way? What could it be that I ought to do? Something, there was—something important. But try as I would in my half-somnolent condition, I was unable to recall the circumstance.

"The rain, which continued to fall with a mild insistence, made me think of water—rivers—boats—gondolas—Italians—Venice—ye gods! It dawned upon me. The thing I was trying to remember was that at this very minute, if my foolhardy experiment had succeeded, I was no longer on good old mother earth, I was on the planet Venus, millions, yes millions of miles away from home, friends and all that I held dear!

"Of course, with *The Space Bender* in my possession, it would be just as easy to return to the earth from Venus as to go to Venus from the earth, but—all this would take time. I should have to go carefully over the apparatus to see that it was in perfect working condition before again venturing on a journey through the fourth dimension. So, for the time being, I was isolated on the planet Venus without hope of aid or protection from whatever dangers might surround me, other than that afforded by my own efforts.

"Bosh!' I thought. "The planet Venus indeed! What nonsense! Probably the wonderful experiment, instead of opening a new world to mankind, had been an absurd failure. No doubt at present I was lying on the laboratory floor with a broken water pipe squirting in my face! By this time I was fully awake. I opened my eyes and looked about.

"Something had happened, at any rate. Wherever

I was, I was no longer in the laboratory. I was lying in a little glade, near a rather swiftly flowing river of muddy looking water. Tall grass grew all about me, but not thickly enough to obstruct the vision entirely. At once I noticed a most unusual peculiarity about this grass. It was yellow. Not the seared, dead yellow of autumn, but a bright, fresh yellow, denoting the strength and vigor of growing youth. Nearby were some large, bright blue blossoms that made me think of peonies, although I had never before seen blue ones. They had a strange odor, which I was unable to place at first, but which I later associated with catnip.

"I realized that my amazing adventure really had succeeded and that actually I was on the planet Venus. While terribly excited, as you may imagine, I was not inclined to any grandiloquent theatricals about the "first man" and all that goes with that sort of thing. No. My situation was entirely too uncertain and acute to permit of any posing to myself or to anyone else—if there were anyone else. It behooved me to go slowly and keep a wary eye.

"Feeling unusually thirsty, most likely the after effects of the drug, I got out my collapsible drinking cup and dipped a generous portion from the nearby stream. It was disagreeably warm; in fact, it was almost steaming, but it answered the purpose. It was water.

"It had stopped raining. Glancing up, I saw a sodden sky through which the sun was trying to peep. In front of me was a field of yellow grass, in which some rather large animals were quietly feeding on enormous white mushrooms. I hid behind a convenient hillock and, as you may well believe, gave the creatures a pretty close scrutiny. I had never seen anything like them. They were about the size of sheep, but there the resemblance ended, for these beasts, whatever they were, looked exactly like gigantic mice. They did not appear to be savage; and, to judge from the fact that they were browsing off some kind of vegetable growth, they were not carnivorous either. It would not do to be too sure, however.

"The sun came out brightly, dissipating the remaining vestiges of storm. Suddenly, without any warning sound whatever, a man—at least he appeared to be human—stepped directly in front of me from a neighboring thicket and stood regarding me intently with an emotionless stare. I did not understand how he could have moved so silently through the long grass, but he gave me little time for speculation.

"With a spring of lightning-like quickness, he leaped upon me, bore me to the ground with an ease denoting tremendous strength, and swiftly bound me, so that I was unable to move hand or foot. He then stood quietly contemplating me for a short while, during which time you may well believe that *I* observed *him!* Apparently having satisfied his curiosity, he turned and walked rapidly away, without so much as a backward glance.

"Despite my terrible fear as to what fate was in store for me, I could not but be interested in my captor's personal appearance. In general outline he was the same as I, myself. In other words, this inhabitant of another planet was human. Of that there was no doubt. His figure, however, was more sinuous, more lithesome than any physique possessed by earthly man. There was a certain innate grace and dignity in his carriage which contrasted detrimentally to our jerky, spasmodic walking.

"His features were most peculiar. His forehead, while fully broad enough to vouch for an excellent mentality, nevertheless was flatter and more receding than ours. His ears were slightly triangular and, most remarkable of all, they were pitched or slanted forward. The nose was short, straight as an arrow, and the nostrils were expanded and open.

"I did not like the fellow's eyes. They were a beautiful yellow, tinted with green, but were close together and had a lurking glitter that gave an uncomfortable impression of merciless cruelty. To sum up; while the man was undeniably handsome, his good looks were of that sinister beauty one associates with—cats! That was it; he made me think of a cat.

"MY interesting, but certainly fearful reflections, were interrupted by the man's return. This time he was accompanied by several other similar individuals, under the direction of an elderly person, dressed in a gorgeous yellow and black striped cloak, who seemed to be in command. I was partially unbound and pushed forward in a manner that clearly indicated I was to accompany my captors.

"I was perforce obliged to obey. Indeed, I wished to go with them. I had come these millions of miles to see what was to be seen. They permitted me to retain *The Space Bender.* Why should I hesitate?

"We entered a closed car, like our sedans, although the coloring would have excited lively interest on Broadway. It was black and white, in irregular daubs or splotches, the same as some black and white cats are marked. In place of the little image usually found on our radiator caps was a representation of an outspread claw. The talons were about five inches long, curved and sharply pointed. Of course the thing was only a metal decoration, but the workmanship was amazingly clever and produced an extremely realistic impression. In conjunction with my position, as the lone representative of another world and the cat-like appearance of these people, the claw gave me a devilishly uncomfortable feeling.

"They started the car in much the same way we start an auto, by shifting a number of levers or gears. It was very noticeable that the horrible racket, sometimes incident to our starting a car, was entirely lacking. I may mention here that this people hated and detested all noise. Their earnest efforts had been devoted to the elimination of all sound. Instead of horns, bells, whistles and the like—contrivances intended to produce sound of one kind or another—they had machines cunningly devised to prevent all vibrations that might affect the hearing. I found this out later, of course. At the time, though, I was merely struck by the silent smoothness with which the car started and ran.

"We proceeded at a moderate pace along an excel-

lent road toward what I took to be a distant city. As we rode along, my guards conversed in low, beautifully modulated, contralto voices utterly unlike the raucous grunts and shrieks of human speech. The language was wondrously melodious. It seemed to be all vowels, with the addition of some extra ones unknown on earth. Heard by anyone who does not understand it, our language would, no doubt, sound like the chatter of apes. To me, the language of this people closely approximated the purring of well-bred, refined cats.

"I began to be less afraid. Clearly, I was in the hands of rational beings; human beings just as much as you or I. They had no reason to harm me; I had injured them in no way and I could not see why they should wish to do me ill. Furthermore, they appeared extremely interested in me, evidently regarding me as a subject for scientific investigation and study.

"Their deportment to me was most kind and considerate. Their manners to one another were excellent. Each occupant of the sedan (I call it that for want of a better name) sat in his own place, attending to his own business, except when taking part in the conversation. No one interrupted or broke in on the speech of another. As a result, there was an entire absence of the confusion and tumult that would have characterized a similar scene on earth. My scientific training began to dominate my alarm. I really began to enjoy myself.

"We entered the city. The streets were broad, spacious and well paved. The material was a kind of cement that had been treated in a way to deaden all sound. We rolled sedately on, between large, commodious houses surrounded by well-kept gardens of the prevailing yellow hue, which by this time I had learned to accept as common to the vegetable life of Venus. It hurt my eyes. One of the men, noticing that I blinked, gave me a pair of glasses, which deadened the glare without destroying the ability to see colors. I wore these for the rest of my sojourn among this race.

"A very striking peculiarity of the architecture was that the window panes were all of opaque glass which entirely precluded any prying into private affairs either from without or from within. Evidently this folk had the excellent habit of attending to their own affairs.

"I was greatly impressed by the cleanliness displayed on every hand. They carried this to the pitch of an obsession. In one of the most beautiful gardens, to my unutterable astonishment, I saw a person, whom I judged to be a domestic servant, actually *dusting* each separate blade of grass with a little brush apparently designed for the purpose. I could not help smiling at the thought of what would happen to a careless smoker, who scattered ashes on a floor guarded and cleaned by one of these housewives.

"We turned into a broad, curving driveway, which stretched in a graceful sweep between triple rows of bright orange-colored palms to a two-storied building of robin's egg blue marble. The effect of the orange-hued foliage and the brilliant blue stone may be imagined.

"The first story of this edifice, evidently a public building of some kind, had no entrance. There was an opening on the second floor, but I saw no way of getting to it, save by a double balustrade, which swept in easy curves, one from the right and one from the left, from the ground to the floor. As the pathway along the top of these balustrades was only about three inches wide, I did not see how anyone, short of a circus performer, could manage the ascent.

"To my consternation, my guides, I no longer regarded them as captors, hesitated not a moment, but proceeded to mount the giddy way with the utmost unconcern. I hung back. They motioned for me to come on, evidently entirely failing to understand the cause of my reluctance.

"I was at a loss to make plain my difficulty, as these chaps apparently were as sure-footed as cats, and had no conception of the sensation of dizziness. Finally I hit upon a way of presenting my case. I walked a foot or so up the incline and then deliberately stumbled and fell off. They consulted together for a while, after which it was apparent they had grasped my meaning, although sorely puzzled to assign a reason for so strange an aberration.

"The leader ordered two of the party to take hold of me to steady my steps. By this means I got up safely and entered the building. The inside was a vast hall containing a large assortment of luxurious couches and divans arranged in a circle about a slightly higher dais, on which reclined a venerable personage, whom I made out to be the king or other ruler.

"This man possessed the most enormous moustaches it has ever been my lot to see. They stuck straight out on either side of him, to a distance of at least eight inches, giving a most ferocious appearance to an otherwise entirely benign and indolent looking countenance. His peculiarity directed my attention to the fact—hitherto recognized only by my subconscious mind—that these people were equipped with inordinately large moustaches, greatly resembling the whiskers of a cat.

"Hanging in silver cages at every available point about the room, were beautiful yellow birds, exactly like canaries, but of the size of ravens. These delightful creatures continually sang in voices of exquisite richness. Their music was unlike any singing of birds I had ever heard. They produced connected, definite melodies in four full parts. Imagine it, Forbes, my boy, if you can! Choral selections, in intricate structure of rhythm and counterpoint, the equal of any of our most famous compositions, rendered by the fresh, unaffected voices of nature's children of the forest and meadow—birds! It was a musical glory to stifle the senses with rapture. It was easy to see this people had not eliminated all sound, merely such sounds as they did not wish to hear—such as those produced by the incompetent performer. Real artists were highly esteemed.

"The king raised his hand. In an instant the singing ceased. After a short consultation with my conductors, he looked directly at me. He then pointed to a small person nearby, who carried what I took to be a

couple of large books, and slowly pronounced the word 'Tomasso.' After this he rapidly opened and shut his mouth several times without making a sound. As the lone representative of my world, I did not like to appear dense, but I must confess that, for a moment, I failed to comprehend his meaning. Then it dawned upon me. The little fellow was named 'Tomasso' and would teach me their language.

"I smiled in a manner I intended to denote intelligence—perhaps I only looked foolish—and nodded my head to show I understood. The king, whose name I later ascertained to be 'Tabi,' was satisfied. I was led away to a room, comfortable in every detail. This became my home for several weeks, while I was learning to speak their tongue. I will not bore you with the manner in which this was accomplished. The theme has been gone over in every tale and romance of adventurers thrown among alien races. It will suffice to state that at last I did become fairly proficient in speaking their soft and melodious language.

"WHEN I had become sufficiently adept to converse intelligently, I was accorded many interviews with King Tabi. Here I met many of his attendants and counselors, all deeply interested in what I had to tell them of my world.

"In turn, they imparted their history and manner of life to me. It is needless to state it enthralled me. My daily existence was now a quiet enjoyment of scientific intercourse with refined and cultured beings. Yet, in spite of all this, ever and anon a wave of horrible loneliness overpowered me, because of my complete separation from my kind.

"For, despite their cultural advancement, and their kindness, they were different, completely, fundamentally different. It was not the divergence to be found in a person of another country or another race, who, for all of his strange ways, was fundamentally the same human being the world over.

"It was a chasm impossible to bridge; a gap across which there was no passage. *They were a different genus!* At this point I may as well tell you what I had already dimly suspected and what you may have guessed for yourself. They were evolved from cats, just as we are descended from apes!

"But do not misunderstand me, my dear Forbes. They were not cats. They were human beings, just as much as you and I. They were no more cats than we are monkeys.

"Although Venus is a younger planet than the earth, the more rapid breeding propensities of the feline had compensated for this adverse time-factor with the result that their evolution had been fully accomplished. Generation upon generation of adjustment to environment—the survival of the fittest and all it implies—had brought about modifications in the cat, to produce the cat-man analogous to those impressed upon the ape to produce the ape-man.

"Evolution produces but modifications, differentiations. The fundamental germplasm is always present, breeding true to type throughout the centuries and, ignore it as we will, yet it forms the dominant theme of the song of life, nevertheless. It must be so.

"It is a long way from a meeting at Newton Hall of scientists arrayed in starched shirt fronts and immaculate white ties, to the primeval chaos of the tree-top, and it was a long way from the sedate, dignified, handsomely attired men and women attending a function at King Tabi's court to the blood and reek of the jungle, but the ape forms the basis of the one and the cat lurked beneath the surface of the other.

"To make clear my meaning, consider the ape-like characteristics of humanity. Most people accept evolution as a theory that we have been descended from monkeys and—there conveniently stop. Pushed to its logical conclusion, however, to be descended from a common ancestor with the ape means to possess the same mental make-up as the ape; a million times removed in degree, if you will, but identical in kind. From this conclusion there is no escape.

"The insatiable curiosity of the monkey has become, in man, the scientific zeal that probes the stars and fathoms the secrets of the invisible atom. In minds of lesser caliber, however, it has become a miserable prying into other people's business. The chatter and mouthings of the ape have developed into the grandest oratory; the most noble drama—and also into the senseless clap-trap of ordinary conversation of the street. The inconsequential lack of purpose displayed by monkeys has brought forth mankind's delight in wholesome play, games and the like, but it has likewise wasted the greater part of his efforts in the pursuit of useless baubles. The acquisitiveness of the ape, the desire to get hold of things, has given us our property-sense, from which come the benefits of business and commerce, but it also has produced the loathsome miser in his lonely garret.

"So with all else. Our civilization is simian in origin, our virtues are simian virtues; our vices are simian vices; our thoughts, our very selves, are simian, and simian they will remain.

"In the same way, in this people, the characteristics of the cat, under the spur of evolution, had grown into a mentality which, while removed to the *nth* degree from the limits of the cat, nevertheless at heart was the mentality of the cat, to be explained only by cat psychology.

"Their civilization (equally as intricate and highly developed as ours) was a feline civilization, based on feline hopes and desires and suited only to feline inhabitants. Its good points were the virtues of cats; its faults were the imperfections of cats, in which no other animals save cats would have gone astray. In them, as in us, the life force had bred true. No matter how cultured, no matter what intellectual heights they might scale, cats they were and cats they would remain until their act was played out and their curtain rung down.

"'Our government,' said King Tabi, leaning back on his cushion, on which was beautifully depicted in gold embroidery, a mythological legend representing a dog presenting a gift of a mouse to some cat-god, 'compared to yours is a strange mixture of freedom and despotism.'

"He thoughtfully blew a couple of fragrant whiffs from his catnip perfecto, and knocked off the ash into a little blue china tray, on which was painted a pretty love scene where several gay gallants serenaded a famous belle of a bygone day. He told me this was a scene from their age of romanticism, corresponding to our days of chivalry.

" 'From what I have been told, your government is quite unlike ours,' I replied, accepting a helping of roast canary, but tactfully declining a rat sirloin. 'That is to be expected, however. Naturally the feline temperament would produce a different ideal from the simian.'

" 'Yes, quite different,' his majesty replied. 'Our earnestness of purpose' (a cat never fools; it always means business, you know) 'holds that absolute authority is the most efficient way of getting things done. Hence, in public matters, I exercise a power beyond any power known to your kind.'

" 'Our generals in war time have full power,' I ventured.

" 'True, but according to you, even they are limited by custom and public opinion. I am limited by nothing. A citizen who questions one of my royal decisions would not be held at fault. He would be considered insane and placed in a mad house.'

" 'On the other hand,' he went on, 'our love of personal freedom prevents any attempt to regulate the lives of the people in private matters. If I tried to interfere in morals, education, religion and what-not, in the way you tell me your governments do, my reign and my life, by a simultaneous end, would pay forfeit to my temerity.'

"He delicately sipped a valerian sherbert. 'But pshaw, why should I wish to?' He smiled and set down the empty glass, which was instantly removed by a small fellow dressed in gray livery. 'What do I care what they do, so long as they keep the law and pay their taxes?'

"Here was food for thought. For the life of me, I could not decide whether our system or theirs was better. The callous selfishness of King Tabi in regard to the welfare of his people was truly appalling, but, as he, himself, pithily remarked, is our paternalism entirely altruistic or does it largely gratify a simian desire to poke our noses into some other fellow's business?

"Then there was the despotism. Why, life would be unbearable if one were at the unqualified mercy of a monarch like King Tabi! Yet, when all was said and done, was the entire system of government more despotic than those on earth? Which is more irksome—implicit, blind obedience in a few things, with entire liberty in all else, or a modified, partial obedience in almost every act of one's life from the cradle to the grave? We gave it up. I could not decide and neither could the king. We agreed that our way was no doubt best for us and their way was best for them.

"I HELD many interesting conversations with a Professor Leo, M.E.O.W., who was head of the educational system, if their method could be called system. To me it seemed chaos, the absence of all system, and yet it worked. It produced results. Its basis again was the love of personal freedom, inherent in every member of the cat tribe.

" 'We compel no one,' asserted Professor Leo. 'What is the use? If they don't want an education, one can't put brains into their empty heads by forcing them to go through a routine curriculum they neither appreciate nor understand.'

" 'But, Professor,' I objected, somewhat shocked at his open brutality, 'don't you think even a little education is better than none? Such total ignorance—'

"Leo was a rather crusty old codger, whom one had to handle with care. I had offended. He rose from his divan and took a position directly in front of me, delivering the following ukase in his best lecture-room manner. His green eyes snapped and his whiskers stood out horizontally with outraged dignity at the barest intimation of contradiction. He must have been a fine old customer for anyone to study under. I wish he had some of our freshmen. He'd make them sit up and take notice. But I digress.

" 'Education is open to all,' he said, 'rich and poor alike. There is no distinction. All must pay the same price, not in money, as you do, but in personal service. A student binds himself to his college, as a servant in his particular line, for a term of years proportional to the particular branch he selects. The dull and indolent are ruled out of this sort of thing by their own natural lack of ambition. Only those possessed of minds really worth-while enter the colleges at all. The result is all college graduates make good in their particular fields.'

"He glared at me for a minute, seemingly searching for a word. Finally he found it. It was one of our words (their vocabularly had no equivalent), which I had taught him, and which momentarily had escaped his mind.

" 'We have no *flunks!*' he snapped and walked out.

"His statement was true, they had none. By allowing nine-tenths of the population to eliminate themselves, they avoided any failures among those who elected to study. The results of their system were unique. A simply overwhelming majority was steeped in an ignorance darker than blackest night. At the top of their society was a ruling class of actual geniuses, who reached their high position, not by political pull or the might of wealth, but by sheer, downright brain power. For every one of our people who cannot read or write, they had a thousand, but for one Columbus, Shakespeare, Verdi or Edison, they had ten or twenty. Which was better? Their way or ours? But I am recording a visit to a strange land, not writing a philosophical treatise!

"THEIR science of medicine was far below ours. Indeed, it was scarcely to be mentioned in the same breath. The egoistic, self-centered nature of the cat had prevented any real progress in a sphere, which, of all fields, most requires sympathy and human understanding.

"Such hospitals as they had were torture chambers;

shambles. Anaesthetics were unknown. The well-known fortitude of the cat under the severest pain had rendered them unnecessary. Their doctors (butchers would be more appropriate) performed major operations on unlucky devils in full possession of their senses. Vivisection? They had it—and then some!

"Imagine it, you earth men, who find it necessary to apply soothing talcum powder to take away the sting of a shave! Legs sawed off; stomachs gashed open; brains sliced and pared—God knows what atrocities perpetrated with a cynical indifference that would have made Nero blush for shame!

"My suggestion to give them the benefit of my greater knowledge (the fact was not questioned) was met with a surprising lack of interest. Naturally one would think the subject of health would be absorbing to any race, whether descended from cats or what-not. Not a bit of it.

"'What's the use, friend Lieveemour,' remarked the lady, to whom I was expounding my plan. This lady, by the way, had just buried a relative whom I easily could have saved. 'If a thing is out of order, one throws it away, doesn't one?' She paused to gently fan herself with a gorgeous fan made entirely of canary feathers. 'Well,' she languidly continued, 'if a human being is broken or worn out . . .' She smiled a bewitching smile and went on fanning herself.

"Her unfinished sentence was more eloquent than a lecture could have been. It brought home to me the tremendous gap between their civilization and ours, the difference between the cat and the ape. I thanked God that, with all its faults, I traced my descent from the ape. However, as King Tabi would put it, belonging to the latter, naturally I would look at it that way. He didn't. It was all in the point of view.

"Mechanically they were centuries, ages ahead of us. Mechanical contrivances, the nice adjustment of cogs, wheels, bolts and the like, is the science of patience par excellence. Exact balance, perfection of workmanship is essential, and what creature is more patient than a cat? Compare the untiring persistence with which puss watches a mouse hole with the restless, nervous leaping about of Jocko from perch to pole, and a slight idea of the superiority of the cat's descendants in a calling needing patience can be imagined.

"Their chief engineer told me the main drive wheel at their water works was set and reset three hundred and fifty-two times before it was finally passed! The result is it has never needed any attention, although it has run continuously for over forty years. So with all their work. They do it right in the first place, no matter how long it takes. That is the secret of their skill. Extreme care on each job; every task is a work of art. Mass production and cheap articles are unknown. So are failures and breakdowns unknown. Thus it is—different again.

"This chief engineer, a brother of the king, was the one who devised the means of sending this message to earth. His method was not divulged to me, as it involved a secret process, knowledge of which was permitted only to members of the blood royal. He is also going over my *Space Bender*, but will not have it ready for me to try the return journey to earth for some time yet. The work could not be left in better hands.

"I received a royal command to attend a state ball to be given in honor of the marriage of the crown princess, Pummas, a charming young girl, to a powerful noble from a distant province, with whom she had fallen deeply in love and who returned her affection. Never had I thought possible such splendid toilettes as these ladies and gentlemen exhibited.

"You know how a cat washes and smooths itself, never seeming satisfied with its appearance. Well, this habit of personal cleanliness, born in the feline, has evolved into a vanity surpassing anything you or anyone else on the earth ever saw.

"The men wore silk, satin and velvet, studded with all kinds of precious stones. The colors were carefully selected to harmonize with their complexions.

"The women—shades of Helen of Troy—the women! Their gowns were composed of some kind of cloth actually woven from strands of solid gold and silver, trimmed with the down from young humming birds' breasts; iridescent, glowing, almost afire with a shimmer of flashing, shifting color The scene completely eclipsed my powers of description.

"At this ball a most regrettable affair took place. During dinner, one of the men paid too much attention to a beautiful lady across from me, who, so I was informed, was engaged to a gentleman beside her. Words arose and, to my dismay and astonishment, the two men retired to an anteroom where, after about five minutes of furious fighting in full view of the entirely unmoved company, the rightful lover deliberately slaughtered his rival with a large sword, literally hacking the unfortunate man to pieces. No one else seemed to think anything of this, least of all the fair cause of the trouble. All went on eating, drinking and conversing in the most matter of fact way.

"I was told that these duels were of frequent occurrence and were considered quite the conventional way of settling differences. The victor in this particular combat held a record of three hundred and eleven such murders to his credit. When I add that this amiable personality was the head of a school for children and was considered rather too mild in his administration to enforce the proper discipline, need I say anything further about the ferocity of this race? Yet they were not quarrelsome. They were deadly. As the entire planet was under the rule of King Tabi, war was unknown. This was fortunate, for the possibility of organized conflict among such fiends would have been too frightful to contemplate.

"There are interesting things without number which I might tell you, but which I can barely touch on, due to lack of time. Such are their wonderful diplomacy, having its origin in the stealth of the feline; the marvelous perfection to which the vocal art has been raised; the peculiar custom of expecting children to fend for themselves at an age when ours are still in the nursery; the great mouse ranches I saw, where 'mouse boys' herded giant rodents with all the glamor and romance of our wild west and—the list is endless.

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"I have tried to select such facts as I believe instructive and interesting. My engineer friend clamors for the manuscript which is to be dispatched in his secret container. He says it will take about two months for it to reach the earth. He is waiting beside my desk, so I must bring my account to a close. You may never receive it—I can only hope that you will.

"I cannot return to my home and loved ones until *The Space Bender* is put in condition and I receive permission for my departure from King Tabi. His majesty desires to consult the 'Yow-Yow' or General Council before issuing his royal mandate. From several hints he has given me, however, I have no doubt it will be favorable. Look for me, think of me, pray for me, for surely never did mortal man stand more in need of aid than I do. Until we meet, old comrade, pupil and helper—good-by!"

FORBES laid down the manuscript and sat, head on hand, staring into the fire. The date on the manuscript, given in earthly time, was over twenty years ago, so the glass bottle has been buried approximately that long.

Twenty years! A long while. Surely in that time the marvelous machine had been repaired. It could not be otherwise. Disaster had overtaken his well-loved friend and employer. It was no use to hope. It was finished.

What had happened to him? Where was he? Had the king refused permission to return to earth, and was Livermore a prisoner on that strange planet? Perhaps he had made the attempt and had failed; had been killed or marooned in some totally incomprehensible world of the fourth dimension.

Ye gods, what an adventure! A momentary doubt assailed Forbes. Perhaps it was a huge joke, after all. But no, Livermore *had* disappeared, and, so far as he could tell, the glass bottle and the paper *were* entirely new substances. He did not know what to think.

He recalled the strange behavior of his pet cat, Archibald, when brought near the bottle or the manuscript. Could it be that some subtle bond attracted the creature to these products of his super-relatives? Pish! That was arrant nonsense. And yet—

Forbes rose, knocked the ashes from his long extinct pipe, and walked over to the window, which he raised to admit a flood of fresh, cold air. The storm had ceased. A shaft of golden sunlight flashed on an opposite window. The milkman called to his horse and jingled his bottles. A bell clanged on a distant car. The man across the way opened his door, poked out his head, and took in his daily paper. It was day. The affairs of the world went on . . .

* * *

By this time you probably know that the author has had a little fun with you at your expense; but, after all, even though this story is an excellent satire, why should there not be a cat-like race somewhere? Do we not have a cat-like man and woman with us already? Every one of us has met the cat-man and the cat-woman. Why not a whole race?—*Editor.*

THE END.

THE FIFTH DIMENSION

(*Continued from page* 825)

the previous one. We see and recognize this truth daily in the phenomena of humanity. Every baby born starts life a little in advance, materially and mentally, of its father. This process is very slow and we call it evolution, but it is a perceptible progress nevertheless. It may be aptly likened to the whorls of a spring as compared to a mere flat coil of wire. The earth follows an orbit around the sun, and every year it is in the same relative position with regard to the sun as it was the previous year. It has completed one of its countless cycles. But you know as well as I do that the sun and the earth, as well as the other planets, are *all* farther along in space together. There is a general progression of twelve miles a second on some vaster orbit. This general progression, then, is analogous to our possibility of change and growth; the power to better our conditions; in other words, it is a fifth dimension."

"The wheels of the Juggernaut can be turned aside," I said reverently, "and *there is hope.*"'

THE END

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

SPEED OF SOUND AND OF LIGHT

Editor, AMAZING STORIES:

I have noticed that quite a number of the contributors to the "Discussions" Column have been writing about the effect a rapidly moving body has upon light, such as to raise or lower the color in the spectrum. Therefore, I am writing you to see if you or your readers can explain a few things

In the first place, all motion is relative. Wherefore, if someone were standing on any body moving sixty miles per hour, and shoot a bullet in the same direction he was going at sixty miles per hour, then the total velocity of the bullet would be 120 miles per hour; then if something were moving in a given direction at a given speed, say at the velocity of light, then why would not the light given off from that body travel with twice the speed of light? In the same way, would not the speed of its source tend to speed up or retard the speed of sound? Yet the speed of both light and sound are always taken to be constant, regardless.

Recent investigations have shown that the first estimates of the speed of light were nearer correct

(*Continued on page* 852)

SUCCESS from

"Since my graduation from your school in 1924 I have been going ahead steadily. I was first assistant to Dr. Barnett of Stanford University, doing private research work. This year I was promoted to official technician for the Stanford Service in San Francisco Hospital." (Signed) *M. S. Llano.*

"I got the job! Three and one-half hours after your recommendation must have reached Mr. A—— I was called in to his office and promoted over heads of at least twelve men." (Signed) *J. J. Kelly.*

"I am now cleaner and dyer for the above-named company, and I believe that the course which I am taking with you is the cause of my getting this place. My salary is almost double what it was when I started with the course." (Signed) *E. H. Lasater.*

"I thought I would write and let you know of my success. I now have a fine position as chemist at Du Pont's Dye Works. It was through your course alone that I have been so successful." (Signed) *B. G. Bennett.*

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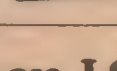

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than those of later days. Thus the speed is generally taken to be 192,000 miles per second, instead of 186,000. Now, is this speed, whatever it may be, constant, or is it negatively accelerated with the passing of time as a material body would be.

I fear that I have taken too much of your valuable time to comment upon the stories. Suffice it to say that I enjoy them all, especially those in the QUARTERLY and those by Burroughs.

CHARLES WILIE,
435 S. Fannin, Tyler, Texas.

[Studies of the action of light waves taken in connection with the Einstein theories go to prove that the speed of light waves is not affected by the motion of their source. But you are getting into pretty deep water, as you will realize, if you read up on Einstein and especially on Michelson's experiments to test out this theory. We do not know of any direct investigation of the speed of sound transmission, as it is affected by the motions of its source. If a shell, moving at the velocity of sound, and away from an observer, would explode, we may suppose that the sound would never reach him.—EDITOR.]

A COMMUNICATION FROM A WESTERN UNIVERSITY ABOUT ELECTRONS AND ATOMS. ARE THERE INHABITANTS ON THE ELECTRONS?

Editor, AMAZING STORIES:

As a continuous reader of the AMAZING STORIES magazine, since the first issue, and always an enthusiastic buyer of the latest edition, I request you to place the following interesting article in your "Discussions" columns; taken from Dr. Crane's Article in the *San Francisco Call,* and written by Dr. Dinsmore Alter, of the University of Kansas—it will undoubtedly be "an appetizer" for some of AMAZING STORIES readers' imagination, as it gives me "food for thought." Here it is:—

The Electronic Man

"Dr. Dinsmore Alter, of the University of Kansas, thinks that the electronic man belongs in the list of fanciful beings of human conjecture. The electronic man is based upon the belief that the electrons within the atoms may follow the same laws as the planets in the sky, for certainly the small asteroids follow these laws. This gives us interesting material for conjecture.

How do we know that in every atom of our body there is a miniature world, or rather universe, stars revolving around a central sun? Living beings may exist on these electrons whirling about in our thumb nail. Time was when an atom was supposed to be the smallest conceivable thing, for the word atom means not capable of being divided or "uncuttable." Then came electrons which are supposed to be even smaller than atoms. Atoms are conceived of as being composed partly of revolving electrons. Even in solid substances such as iron, or human skin, some of these electrons are revolving in their various atoms about a central nucleus, others are in the nucleus. And now comes the interesting speculation; these electrons being miniature worlds like ours, have they miniature inhabitants?

There is no reason to suppose that sentient life is confined to beings like ourselves. Maeterlinck conceived of a soul in bread, and in flour, etc. Why would it not be possible in some other world for souls to inhabit flame, or metal? What "soul" is nobody knows. With us it is certainly within the human organism, but elsewhere it may not be. There is no limit also to speculation as to what takes place in the microscopical world. Perhaps our world, this little planet, bears the relation to the vast cosmos around us and above us, that the atom in our finger bears to our whole body.

Now as a conclusion, I would like to make a suggestion that there should be more illustrations in AMAZING STORIES magazine; they help considerably in bringing the story more to life as it were; the illustrations by Paul are indeed excellent.

DAVID R. THORNTON,
1740 Pacific Avenue, San Francisco, Calif.

(Your point about the electronic man is very well taken and gives room for endless speculation and conjecture. There are some famous old lines to this effect:

"So, naturalists observe a flea
Has smaller fleas that on him prey;
And these have smaller still to bite 'em,
And so proceed *ad infinitum.*"
Dean Swift. Rhapsody on Poetry.

This carries out you will see, your electronic man in the descending direction. It is a pity that we cannot find a quotation to carry your speculations up the line for increasing size.—EDITOR.)

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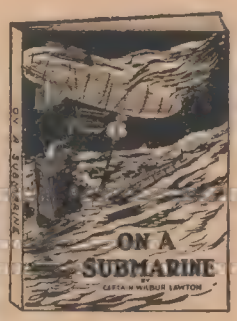

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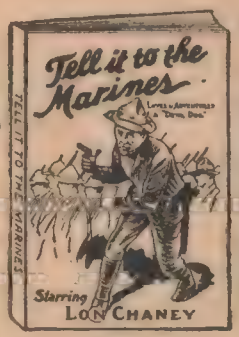

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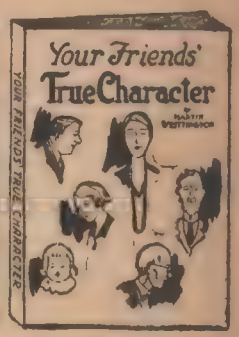

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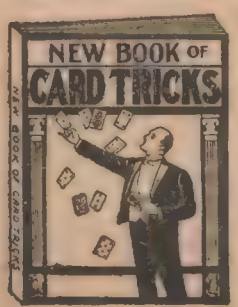

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Editor, AMAZING STORIES:

Having received the comments of readers in your "Discussions" department for some many months you will doubtless be interested in knowing what non-readers think of your magazine.

As a clerk in a drug store selling AMAZING STORIES as well as other periodicals, I find that there are three faults in this magazine in the eyes of prospective readers; the paper, the name and the cover.

I do not hear so much about the grade of paper as I used to, so will not comment on this, but merely hope for a better grade in time.

As to the name, which blazes a path across the top of the cover like a comet's tail, I have more to say. The name AMAZING STORIES loudly shouts out "I am cheap fiction." This doesn't attract the customer, let me tell you. The name itself is not so bad, probably, as the way it appears in "red-hot" blinding combinations of vivid colors that are almost enough to knock the wind out of a balloon.

The third, and biggest fault, I find to be the cover. A typical example of what the cover (or rather cover design) did to a prospective buyer happened last night. Looking over the rack of magazines a man was attracted by the blinding, searing yellow background of your magazine. He hesitated whether he should pick the periodical up or not; but curiosity got the best of him. Picking it off the rack he glanced through the contents gingerly, as though afraid the loud colors would burn his hands. I approached the man, as I always do, when someone picks up AMAZING STORIES, and told him what a wonderful magazine it really is; how I have read every issue since the first one, and how I would not trade any magazine out for this one. I showed him the "Discussions Department" and then had to go away to "jerk" a few sodas. When I glanced up, I saw the man look at the cover, sadly shake his head, and walk out. Another sale lost because curiosity which attracts, can not make one buy.

For the simple reason that there are more non-readers than readers I suggest for *your* benefit that you put a more conservative cover on your magazine which would gain you many more readers. The RADIO NEWS in its July issue had a cover that attracted, and produced sales for you, too.

If this letter has not yet reached the way of all superfluous mail, and if it gets into "Discussion," please don't tell me how great an artist Paul is, and how many praising letters you received on his work, for he suits me also. But if he can not make you more readers than he has done, let the artist who drew RADIO NEWS cover work under Paul and draw the covers for AMAZING STORIES.

If you'd try a "milder" cover on *one* issue only, and didn't sell 500 copies more, I'd eat a corner off our piano.

My personal opinion of your magazine is that it is so wonderful as to be beyond description.

I could not find any thing in "The Skylark of Space" to indicate that it was to take place in the future; yet the queer clothes that Paul draws on the characters seems to point this fact out. Will you please enlighten me?

MELVIN BRODY,
1499 E. 105th St., Cleveland, Ohio.

(We are very glad to get your comments on the covers of AMAZING STORIES. It is a curious comment on human nature that a magazine containing pages of interesting stories, all combining a bit of science with the requisite romance, all selected from a great number submitted so as to give our readers the best, all most carefully edited, the scientific features carefully watched for correctness, or plausibility, the phrasing watched for good English; that such a magazine should depend on how much red there is in the cover or how liberally yellow is used therein to develop its sale. We feel strongly inclined to give you a chance to try your dentition and digestive system on the corner of your period piano. AMAZING STORIES has shown a healthy growth in circulation, and is now on the upward path.

As regards "The Skylark of Space" we certainly do not find anything very futuristic in the costumes given the characters, and as the fair sex are dressing in this vicinity at least, we are inclined to consider the clothes rather old-fashioned.

As regards the name of AMAZING STORIES, it is a pretty serious thing to change the name of a so widely known periodical. But we have long had in mind the possibility of doing so. So there is no knowing what may happen eventually, and we cannot end our comments without letting you know how warmly we appreciate your kind interest in our work.—EDITOR.)

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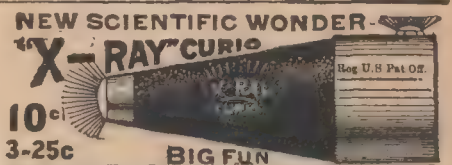

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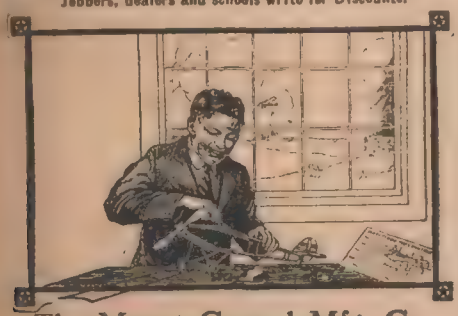

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A GENERAL AND GENEROUS APPRECIATION OF AMAZING STORIES. MR. PAUL'S WORK DISCUSSED

Editor, AMAZING STORIES:

Having been a reader of your magazine for many months, I feel that at last I may be qualified to add a comment or two of my own to the many others in "Discussions."

I do not happen to be a scientist—nor, for that matter, even scientifically inclined—but that does not prevent my very cordial enjoyment of the "Scientifiction" stories in AMAZING STORIES.

I have especially liked such ones as: "The Yeast Men," "Ten Million Miles Sunward," "The Moon Pool," "The Invisible Man," "The Second Deluge," "A Modern Atlantis," and, in the August number, your new serial, "The Skylark of Space" starts out very interestingly. Speaking of the current issue, Philip Francis Nowlan's "Armageddon—2419 A.D." is one of the most entertaining stories, since I first became "afflicted" with the AMAZING STORIES habit. By all means, a sequel, and that as soon as possible.

Might I inquire as to the lack—regrettable, to my mind—of more stories by Edgar Rice Burroughs? While I am unable to criticize or applaud—their scientific value, because of my own lack of knowledge of such subjects, his stories carry an extraordinary appeal and I should like to see more of them in your magazine.

I also see, in "Discussions," that Mr. Paul's drawings are "under fire." Being an artist of sorts, I should like to say a word both "pro" and "con." Mr. Paul has improved, mightily in his black and white illustrations, and it seems to me that there is very little lacking in them now, but—and now I make both enemies and friends—his cover drawings have failed to keep pace.

It is rather an odd coincidence, but I had previously refused to read the first copy of AMAZING STORIES that I later did read because I disliked the cover so potently. Later on I read—and thoroughly enjoyed—that same issue—but not until the cover had been torn off. I did not realize that it was the same magazine until I purchased the next month's number at a newsstand and recognized the same artist's work on the cover drawing. However, taken all in all, we can very well "put up" with the cover designs for the sake of Mr. Paul's pen and ink illustrations.

But then, the covers do not make a magazine, nor break it, so "here's how" for a continued and increased appreciation of AMAZING STORIES.

CAROL HODGES,
Euclid Avenue at 10th Street,
Miami Beach, Florida.

(With regard to our cover drawings, the conditions of printing in color is such that they lose in the reproductions undoubtedly. But if you will take the trouble, and we are sure it will be a pleasure, to study out what is shown in them, in the way of apparatus, perhaps, or in mechanical and architectural structures, you will be surprised in many cases how much there is to be seen. Any amount of thought is bestowed upon each and for our purpose they are certainly superior to a lighter effect, more picturesque drawing with all science left out.—EDITOR.)

AN EXCELLENT CRITICISM FROM AN EXPERT

Editor, AMAZING STORIES:

Allow me, in my capacity as a professional linguist, to invite attention to the abominable practice which some of your writers have of referring to the inhabitants of Venus as "Venusians." As the stem of the word is "Vener," the proper form of the word is "Venerians." The following table will illustrate my point:

English name of planet: Mercury, Venus, Earth, Mars, Jupiter. Latin name of planet, Nominative—Mercurius, Venus, Tellus, Mars, Juppiter; Genitive—Mercurii, Veneris, Telluris, Martis, Jovis. English name of inhabitant—Mercurian, Venerian, Tellurian, Martian, Jovian.

I always read your magazine from cover to cover and enjoy all the stories, having no favorites; and have no other fault to find with it. However, the occurrence in an otherwise well-written story of such an etymological monstrosity as "Venusian" is sure to jangle on the nerves of those who are familiar with the correct processes by which new words of this kind should be coined.

R. P. VOGENITZ,
Principal Translator, P. O. Dept., Wash., D. C.

(We are very glad to get the better philology or stymology affecting the names of supposed inhabitants of the different planets and we think you make a very good case of Venerian. Perhaps the writer feels that his communication hardly amounts to the dignity of philology and yet, he says that Venusian is an etymological monstrosity—and he is quite correct.—EDITOR.)

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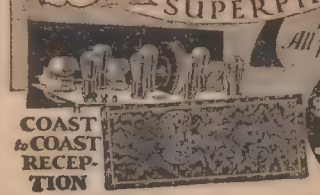

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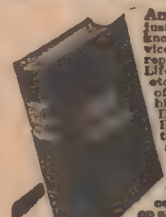

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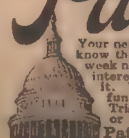

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AN INTERESTING LETTER ON LIFE PROBLEMS

Editor, AMAZING STORIES:

This is the second time in my life I have written to the editor of a magazine. You ought to feel complimented! Anyhow, I am writing to tell you that I like, yes very much like, your magazine AMAZING STORIES. When one deals with the realm of thought and feeling as much as I do, it is stimulating to get hold of AMAZING STORIES for an evening beside the fire, and after lighting up the old pipe to delve deeply into the adventures of the writers who in their own minds, their own imaginations, travel the heights and lengths and breadths and even another dimension of being . . . (I think that there are an infinite number of dimensions!)

While I am not as yet a subscriber, as I am on the road so much that it is easier for me to pick up copies at newsstands along the way, I expect to be at home during the winter and then you will have my full subscription for both the monthly and the (truly wonderful) QUARTERLY.

In your editorial, "The Amazing Unknown," you make very plain the bounds and limits of human achievement to date. But there is one phase that you only touched lightly upon, rather hinted at, I might say—the soul. "What do we *know?*" Well, we, or rather some of us do *know* something about it. But it is my opinion that this knowledge comes to one as the result of an inner and spiritual experience rather than a scientific fact, that can be proven step by step in the laboratory.

(Now don't jump at any hasty conclusion about religious nuts! Stay around for another paragraph.)

Here is an "amazing" suggestion for you. . . . The scientist who wants to study the soul of things, man etc., must develop another sense perception!

The trouble has been that the average scientist, who has taken the trouble to speculate on the nature of the soul, has sought some *material* proof of its existence. Matter, as we commonly speak of it, does not exist on that plane of expression. "Therefore it must remain unknown," some might conclude. Not so. Man has at least one more "sense" besides his ordinary five. The sense of the perception of spiritual values or what has sometimes been called the reality that lies behind the material universe. You see now, don't you, why I cannot rightly call its (the soul's) discovery a scientific one? It is rather an *art*. One has to develop the sixth sense that lies dormant within one—every one!

By the practice of certain methods of mental discipline, the sixth sense can be awakened. I have proved this for myself as many others have, but one cannot *prove* these things to another; one has to "taste and see" for himself.

Religion is based on this faculty of the "perception of reality," but as only a few have the persistence to go ahead with the discipline necessary, religion has been handed on to the masses as a mere matter of faith. The leaders themselves have lost sight of the vision of the founder of the religion, and this leads to the teaching of "faith," etc., etc. Imagine Edison, for instance, asking people to accept the statement that he had discovered the electric light. He wouldn't get away with it for very long would he? But mankind has been trained to think of spiritual things as "sacred" to the priests or those "in authority" and their efforts to make discoveries and to tell people the truth have been (sometimes violently) discouraged!

But enough of this. Now what have we actually discovered? But here I want to say, don't take my word for it; please don't! Just challenge my statement to the point of desiring to test it and then you too, or anybody for that matter, can find out these things for himself.

1st. Man does not really die. There is no death. As to what happens after the "change" comes, don't ask me that. (I am not going to tell you all I know.) Find out for yourself. You probably wouldn't believe me.

2nd. Man is a part of an infinite whole. He can *know* this.

3rd. Man is not an absolute free agent. This universe is governed by law. Obedience to the law brings freedom of mind and body.

4th. Man will never find peace and harmony with life and his fellows—and nature! until he does develop this 6th sense.

Well, this ought to curl the type on your typewriter! Anyhow, I thought I would pass this on for what it is worth. Do you get that? "What it is worth?" ! ! ! ! What would it be worth to people to know the truths mentioned above? *Everything*. Yes, you've said it. You would give up everything to solve these problems. So would I. In fact I did!

MORRISON P. HELLING, *Teacher*,
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This is the story that just one of our readers tells. We know that there are many more homes throughout the country where the same condition prevails. Our readers have found a world of valuable knowledge in each page of YOUR BODY. They know that it is a medium devoted to the welfare of the human body and that it is to their advantage to read carefully every page. Sex, psychology, treatment of all maladies, the senses, our instincts, all are fully explained in the plainest of untechnical language. In YOUR BODY there is a section for every member of the family, mother, father, brother and sister. Go to the newsstand today and get your copy of this valuable magazine. Over 112 pages—fully illustrated—large magazine size.

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The Art of Living
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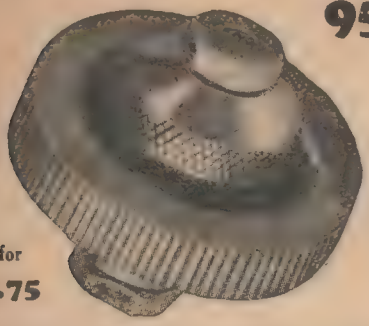

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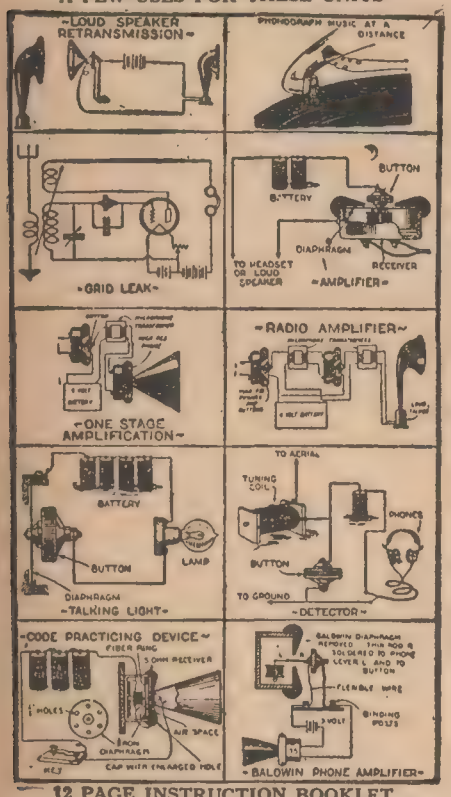

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(As long as the "Discussion" columns have been running, each letter has received editorial comment with a single exception. We think perhaps it would be well to use this letter to supply a second exception, because we cannot comment on it. Its psychology seems at once deep and well put. While much that is interesting in the way of psychology has been developed in our stories, we think that this correspondent, in his most interesting letter, goes quite beyond, or perhaps deeper than anything we have published, so we will let the letter do what it is very well able to do, namely, speak for itself. We understand that our correspondent is a teacher, and his letter certainly shows much thought.—EDITOR.)

THE OLD AND THE NEW SCHOOL OF FICTION. FANTASY AGAINST POSSIBILITY IN FICTION

Editor, AMAZING STORIES:

Having picked up a copy of the May issue of SCIENCE AND INVENTION Magazine, (which contains the synopsis and closing instalment of "Into the 4th Dimension," by Ray Cummings) in the bunk car of a bridge outfit, where I am endeavoring to recuperate from the results of a fall from the girth brace of a bridge outfit, it occurred to me that it might be a pardonable offense (in view of the fact that I have absolutely nothing to do, and 24 hours a day in which to do it) for me to burden you with a few observations on the subject of the so-called "Scientifiction," which, I believe, originated in the work of Jules Verne, and has been carried on by H. G. Wells, Sir Arthur Conan Doyle, and others.

In my school days, I was an inveterate reader of this type of fiction, as well as of the Sherlock Holmes stories, which are the outstanding part of Doyle's work. I remember numerous stories of trips to the moon, by rockets, by means of a substance which eliminated the force of gravity, and by drawing the moon to the earth with a huge electro-magnet; stories of great interest to my young mind, and which, I believe, would still hold my interest if I read them today, because they had to do with material things that were reasonably within the range of possibility, although, of course, the probability of these things coming to happen is very small.

I read "The Invisble Man," and the "Time Machine," by H. G. Wells, and "The Poison Belt" and "The Lost World," by Doyle, and although there were things in all of them that were impossible, they were told in a very interesting manner and, therefore, their faults were pardonable.

"The Time Machine," in fact, was an exceptionally good work, because, although its subject is an impossibility, (I say this without fear of contradiction), Wells gave us a look at some possible social developments of the future, which may or may not actually come to pass, but are interesting possibilities.

"Dr. Jekyll and Mr. Hyde," by Robert Louis Stevenson, is another very interesting contribution to "Scientifiction," because it offers a very amazing possibility, and because of its excellent construction of plot.

Of late years, however, there has sprung up, either in imitation of the old "scientifiction," or as a result of the American weakness for overdoing everything, a new school of "scientifiction. (This "weakness" for overdoing things is by no means limited. When I was in San Francisco last winter I read a book, the name of which I have forgotten, by an author, whose name I have also forgotten, who takes the title of "The American Oppenheim," which contained an account of a war between the United States and Japan, in which the fleets of both nations were entirely wiped out and the harbor and bay of San Francisco were captured by the Japanese civilian population of San Francisco and Oakland, and a great portion of the Union Pacific tracks between Ogden and Chicago was destroyed by Japanese spies to prevent the American troops from reaching the coast. At this point I closed the book. The strain was too great.)

The old "scientifiction was founded on the theory that whatever is within the bounds of reasonable possibility or contained intelligent discussion as to future possibilities was good reading. The new school, however, seems to base its activities on the theory that nothing is impossible.

As a result, there has been developed a type of story in which no situation is too far-fetched, no fantasy of the imagination too over-drawn, and writers vie with one another for the honor of writing the most impossible situations into their stories.

One cannot help wondering what will be done, when the saturation point has been reached, when the situation has been evolved to a point when and where it is impossible to conceive of anything more impossible. Perhaps these writers of

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the new school will then turn their attention from the production of absurdities to the development of a style of writing which will lend to these absurdities at least a respectable appearance.

There are, of course, some writers of "scientifiction" who do not belong to the new school; who are able to hold their own without turning mental somersaults. They are, however, in the minority.

There may be advanced in favor of these stretchers of the imagination, the argument that there is a portion of the public that likes that type of fiction. To this I am obliged to answer that there was a portion of the people, a large minority, in fact, that liked its liquor, but they have been deprived of it just the same.

Now I maintain that there is a close analogy between the mental intoxication induced as the result of reading claptrap and the physical intoxication resulting from the overuse of liquor. Both produce a condition favorable to erroneous reasoning, the only difference being that the former takes effect more subtly than the latter and is not so easily perceived by others.

The money offered by SCIENCE AND INVENTION, for proofs of Spiritualism, Astrology and Perpetual Motion, seems to be quite safe. I am of the opinion that had you offered a million in cold cash for each, it would be just as safe.

It seems to me that, of these three bugaboos, astrology is by far the worst. People of more than the average intelligence, who laugh at spiritualism and would regard the inventor of a perpetual motion machine as insane, have "fallen for" the "science" of astrology, and pay visits, (and, incidentally dollars) to the "scientists" of the profession before making any momentous decision or entering into a business agreement. Barnum was certainly right. Fortunately Lincoln was also right when he made his remark about fooling the people.

In this day and age, when the worship of the dollar seems to have taken the place of the worship of God, of science, of intelligence or whatever it is we ought to worship, it behooves us to be on our guard against fakers of every kind. We seem to be cursed with them upon every hand.

I find that this letter has already passed the "point of saturation." Half of this ought to have been enough.

W. A. K.
San Francisco, Calif.

[Your idea that the new school of thought believes that nothing is impossible is pretty nearly correct. So many amazing things have occurred in the way of scientific achievement within the life of the writer of these lines that he has almost lost the faculty of astonishment. As regards the liberal offers held by SCIENCE AND INVENTION for proofs of spiritualism, we believe they are perfectly safe, and our only surprise is that more people do not try to win some of them, although they probably never will.—EDITOR.]

BARON MUENCHHAUSEN AND THE ATMOSPHERE OF THE MOON

Editor, AMAZING STORIES:

For some time I have been intending to call your attention to a very remarkable blunder which you have permitted yourself to make in the March 1928 instalment of *Baron Muenchhausen*. I refer to statements concerning the atmosphere of the moon.

". . . the moon's atmosphere . . . contains 26 percent carbon dioxide, 24 per cent nitrogen, and 50 per cent oxygen. The carbon dioxide caused us to cough violently (??), while the invigorating oxygen in its preponderating proportion in the air, intoxicated us."

Yet: ". . . the moon's air is very thin, only about 1/16 the density of the earth's atmosphere."

Now, since the density of the moon's atmosphere is given as 1/16 of that of earth, let the quantity of air inhaled on earth be 1600, and the quantity inhaled on moon be 100. Then the oxygen inhaled on earth is 21 per cent of 1600 or 336; whilst the oxygen inhaled on the moon is 50 per cent of 100, or 50. Consequently, instead of becoming exhilarated, a man or a dog on the moon would quickly perish from oxygen starvation.

I read but little fiction; but what I have read of AMAZING STORIES I have enjoyed greatly.

RALPH COLLING,
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[The subject of consumption of oxygen by man in breathing the air is touched on in SCIENCE AND INVENTION, October, 1926 (page 489 and elsewhere). Out of 29 cubic feet of air inhaled, a man absorbs only 1¼ feet of oxygen. If he absorbed all the oxygen in the air which he breathed, our friend the baron, would have been in a bad way upon the moon. But the total oxygen required is only about one twenty-fifth the volume of the air or about 1/5th of the oxygen content of the air. According to your figures, the oxygen on the moon would be 50/336 or about 1/6th that on the earth. The fractions come pretty close.—EDITOR.]

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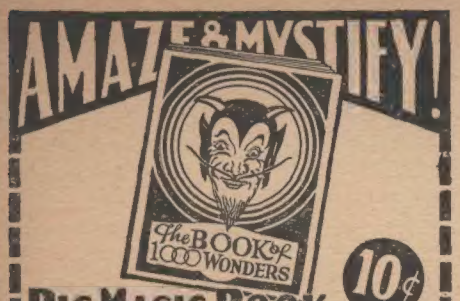

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Of AMAZING STORIES, published monthly at New York, N. Y., for October 1, 1928.
State of New York,
County of New York, ss.

Before me, a Notary Public, in and for the State and county aforesaid, personally appeared Hugo Gernsback, who, having been duly sworn according to law, deposes and says that he is the editor of the AMAZING STORIES and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, managing editor, editor, and business managers are:

Publisher, Experimenter Publishing Co., Inc., 230 Fifth Avenue.

Editor, Hugo Gernsback, 230 Fifth Avenue.

Managing Editor, Hugo Gernsback, 230 Fifth Avenue.

Business Manager, Alfred A. Cohen, 230 Fifth Avenue.

2. That the owner is:

Experimenter Publishing Co., Inc., whose stockholders consist of: Hugo Gernsback, Sidney Gernsback, Dr. T. O'Conor Sloane, H. W. Secor, I. S. Manheimer, all of 230 Fifth Avenue, New York City—R. W. DeMott, 245 Fifth Avenue, New York City, Mrs. Catherine Major, 545 West 158th St., New York City. M. M. Finucan and L. F. McClure, both of 720 Cass Street, Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages or other securities are: NONE.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holders appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustee, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than was so stated by him.

H. GERNSBACK,
(Signature of Editor)

Sworn to and subscribed before me this 1st day of October, 1928.

JOSEPH H. KRAUS,
Notary Public.

(My commission expires March 30, 1929.)
(SEAL)

AN ERROR (?) ABOUT LIGHT . OUR COVER ILLUSTRATION

Editor, AMAZING STORIES:

May I point out, at this time, an error in your answer to Mr. T. Leistra's letter on page 471 of the August issue? You illustrate the theory that light has substance by substituting cannon balls for light corpuscles. In that case, you must also discover the presence of the cannon balls in the same way that you see light—by *contact.* Hence, the idea of luminous bodies is entirely out of the question. So, by traveling faster than light—or, in this case, the cannon balls—the impacts will take place in a direction contrary to that in which you are going and, if you are traveling away from the source of light, in overtaking the bodies you will have the sensation that they are approaching you. Hence they will not "become fainter and fainter" but, in fact, will carry out Mr. Leistra's theory and appear to come from the opposite direction.

In regard to your cover illustrations, it seems that the main objections are based on the fear of other people's opinions! Personally, I think they are ideal illustrations of your new type of literature.

KENNETH BRADFORD,

935 Somerset Street, West, Ottawa, Canada.

[Your letter is very interesting. It is hard to be certain what would happen if one would receive light waves or light corpuscles, when the observer was moving at a higher velocity than they possess. It is more or less of a puzzle and involves some features which have not been brought out by any of our readers. Very few people can claim to understand the Einstein theories. In a sense, they avoid trouble by limiting the possibility of the attainment of speed exceeding that of light.—EDITOR.]

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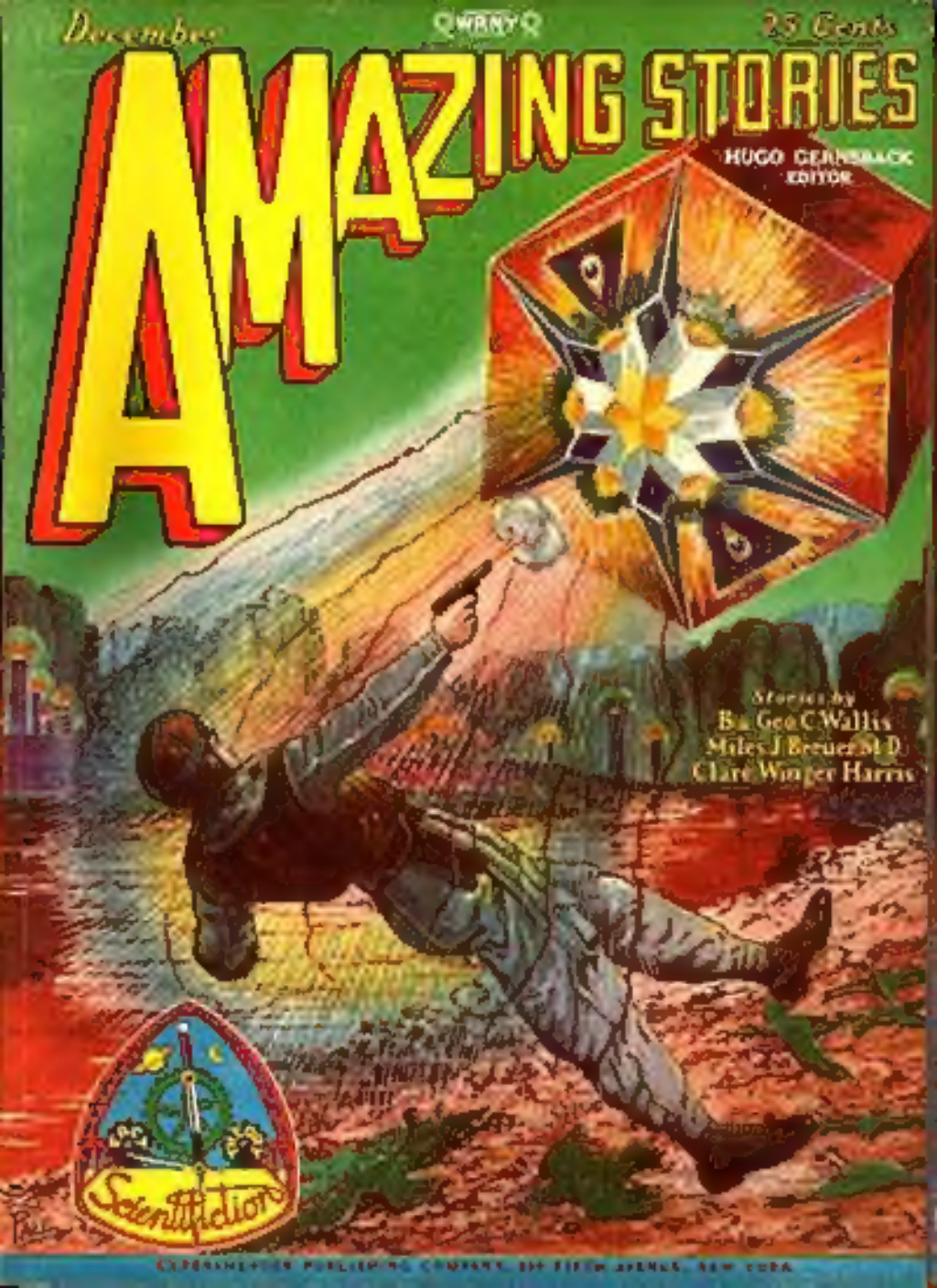

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